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A

MANUAL OF BOTANY

FOR THE

NORTHERN AND MIDDLE STATES.

PART I.

CONTAINING

GENERIC DESCRIPTIONS OF THE PLANTS TO THE NORTH OF VIRGINIA, WITH REFERENCES TO THE NATURAL ORDERS OF LINNÆUS AND JUSSIEU.

PART II.

CONTAINING

SPECIFIC DESCRIPTIONS OF THE INDIGENOUS PLANTS, WHICH ARE WELL DEFINED AND ESTABLISHED; AND OF THE CULTIVATED EXOTICS.

BY AMOS EATON, A. M.

Lecturer on Botany, Mineralogy and Chemistry.
Corresponding Member of the Lyceum of Natural History of New-York.

Second Edition, corrected and enlarged.

ALBANY:

PRINTED AND PUBLISHED BY WEBSTERS AND SKINNERS.

1818.

NORTHERN DISTRICT OF NEW-YORK, ss.

BE IT REMEMBERED, That on the twelfth day of May, in the forty-first year of the Independence of the United States of America, WEBSTERS and SKINNERS, of the said district, have deposited in this office, the title of a book, the right whereof they claim as proprietors, in the words following, to wit:

"A Manual of Botany for the Northern and Middle "States. Part I Containing Generic Descriptions of the "Plants to the North of Virginia, with references to the "Natural Orders of Linnæus and Jussieu. Part II. Con- "taining Specific Descriptions of the Indigenous Plants, "which are well defined and established; and of the culti- "vated Exotics. By Amos Eaton, A. M. Lecturer on Bota- "ny, Mineralogy and Chemistry; Corresponding Member "of the Lyceum of Natural History of New-York. Second "edition, corrected and enlarged."

In conformity to the act of the Congress of the United States, entitled "an act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned," and also to an act entitled "an act supplementary to an act entitled an act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned, and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

RICHARD R. LANSING,
Clerk of the N. District of New-York.

E28m
1818
N.H.L.

TO THE REVEREND

ZEPHANIAH SWIFT MOORE, D. D.

PRESIDENT OF

WILLIAMS COLLEGE, (MASS.)

REVEREND

CHESTER DEWEY, A. M.

PROFESSOR OF MATHEMATICS,

NATURAL PHILOSOPHY AND CHEMISTRY:

AND THE REVEREND

EBENEZER KELLOGG, A. M.

PROFESSOR OF LANGUAGES.

The Science of Botany is indebted to you for its first introduction into the interior of the Northern States. And I am indebted to you for a passport into the scientific world; after that protracted series of misfortunes, which sunk me to the lowest ebb of human misery.

Permit me, therefore,

TO INSCRIBE TO YOU

THIS MANUAL,

AS A TESTIMONY OF THAT GRATITUDE

AND ESTEEM, WHICH IS DUE

TO THE PATRONS OF SCIENCE,

AND OF SUFFERING HUMANITY.

YOUR GRATEFUL

HUMBLE SERVANT,

AMOS EATON.

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PREFACE.

A preface is unnecessary to a work which comes out under the authority of a great name; more especially if it be the name of an European. But when a native American presents to his countrymen a book, purporting to be a work relating to science, he must be very particular to tell us, "by what authority he does these things."

The first edition of the Manual was published by the students of Williams College, for their own private use. As they struck off about five hundred copies, the work became considerably known. Orders were received by Messrs. Websters and Skinners, in the course of the last season, for more than could be supplied. I was consequently solicited by the teachers of botany from almost every part of the Northern States, to enlarge the work, and publish another edition. In compliance with these requests this edition was undertaken.

I have now included all the species of indigenous plants, growing in the United States, to the north of Virginia; whose characters are clear and settled. I have not followed those botanists, however, who are so enthusiastically devoted to cutting up and new-naming. Where the division of a genus seemed to be founded in nature, I have adopted it; provided I had specimens before me sufficient to enable me to judge. The reader is not to suppose, that I have seen all the plants described in this Manual. I have in my collection but about sixteen hundred of them. But I have been very cautious to adopt nothing without the highest authority.

To make a proper selection of exotics, I found to be the most difficult task. The rule, which I adopted, was; to include every species, which I could learn to have been culti-

vated in the interior of New-England and New-York. But I presume there are many, which have not fallen under my observation.

The genera are arranged according to the Linnean artificial system, improved by Smith and Persoon. Nothing can be more interesting, than the study of the natural affinities of plants. But there has been no natural arrangement yet devised by which we can find out the names of plants to which we are strangers. We must therefore follow the Linnean system, as the only safe guide to direct our steps among strangers in the vegetable kingdom.*

The species of cryptogamous plants, excepting the ferns, are not complete. No botanist has hitherto settled their localties in our district of country, to any considerable extent. I have included all which have been examined by Dr. Bigelow, Professor Dewey, and myself. But our researches in this department have been very limited. Some species I have taken from Dr. Muhlenberg ; others have been adopted on very slight unsatisfactory examination. The generic characters are chiefly from Sprenger, in the first, second and third orders—from Linneus in the fourth and sixth—from Smith's translation of Acharius in the fifth. On the whole, I have reason to hope, that the generic characters of the cryptogamous plants will be pretty satisfactory.

The generic descriptions of the phenogamous plants, are chiefly a mere translation of so much of Persoon, as come within the compass of my design. The specific descriptions,

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* Mr. Rafinesque, and several other learned botanists, consider a natural classification, *alone*, adequate to the purpose of investigating plants. In a letter, which I received from that gentleman, he says : "I hope to be able, at some future period, to convince you, and many more, that you have not yet a correct idea of the natural classification." I am sure, no botanist will hesitate to receive Mr. R's natural classification, when he shall have so far perfected it, that our pupils can dispense with the artificial arrangement. But I fear, this great desideratum is very distant.

where there are but few species in a genus, are also mostly from Persoon. But where the species are numerous, and of course longer descriptions than Persoon gives are required, I have generally given a translation of Willdenow's descriptions, taken from Pursh.

In giving English names and popular characters, I have been governed by the best authorities, which I could procure.* But these names are so variable and so different in different neighborhoods, they are never to be relied on, without testing the plants by their essential characters. As we always remember a plant better by an English, than by a Latin name, it is advisable for students to name all plants in English. A mere translation of the specific name, after the manner of Muhlenberg, does not appear to be of much use. Students may better assume the most common English name of the genus, and prefix to it an adjective, descriptive of its most striking character. Take for example the Aster novae-angliae. I would not call it the New-England star-flower; because more than twenty species would be entitled to the same appellation. But I would fix upon some of its most striking characters, drawn from an inspection of the plant; as ear-leaf star-flower, gay star-flower, &c.

I have given neither synonyms nor authorities, excepting in cases where they appeared indispensable. To have given them partially would have been of very little use; and to have given them complete would have greatly encreased the size of the book. To know the various synonyms and the author of every discovery, is never interesting to students in botany at the first outset. But after making such progress, as to begin to extend their researches to larger works, synonyms and authorities become interesting, and even necessary. It may be proper to inform such persons, that Mr. Edwin James, of Albany, is preparing a list of synonyms and authorities for publication; which will serve as a key to all

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* See note to page 96.

works on American botany, as well as to Dispensatories and works on Materia Medica.

In technical descriptions, where errors cannot be detected by the sense, perfect accuracy cannot be expected.

In Persoon's Synopsis, which is so celebrated for its accuracy, he has himself discovered and noted ninety-nine errors. And I have found about sixty errors in it, while engaged in this work, which he overlooked. In this Manual all the essential errors will either be found corrected in the errata, or they may be corrected by comparing different parts. For example, some of the references to the natural orders are set down wrong. These may be corrected by looking over the enumeration of the genera, under Jussieu's orders, &c.

I have ventured upon my own opinion in but very few cases. A great proportion of this work was translated two years ago, under the immediate inspection of professor Ives, of Yale College. The plan of the work, and a great proportion of the materials were examined by Dr. James McBride, of South-Carolina; while he was at New-Haven, in the summer of 1816. Several questions and doubts having arisen in my mind since that time, I made a long list of queries, which I presented to Dr. Jacob Bigelow, of Boston, last winter. Most of these he answered in a very satisfactory manner; and added many interesting remarks, which have been highly useful to me. During the last two years, I have been in the habit of corresponding with Dr. John Torrey, of New-York, upon all questions of doubt and difficulty. This gentleman's situation, joined to his habit of accurate observation, enabled him to answer all enquiries of this nature in a very satisfactory manner. He has free access to the best collections in this country, and to the best American and European authorities. But what renders his opinions of still higher authority, he enjoys the advantage of a regular correspondence with Mr. Elliot, of South Carolina (who is a second Muhlenberg) and is in the habit of conferring with a Hosack,

a Mitchill, a Le Conte, an Eddy, Mr. Rafinesque, and other experienced naturalists.

Notwithstanding these and other checks, I may still have misjudged, and shall need much public indulgence. The new species, which I have given as my own discoveries, have been particularly examined by others, and their advice deliberately taken. The new species of Messrs. Le Conte, Eddy and Torrey, were obligingly sent to me by Mr. Torrey.

In a work of this kind, which is expressly designed for those, who are not adepts in botany, some remarks upon the adventages of the study of this science might be expected. The annexed letter, which I received from Dr. Hosack, while I was giving a course of lectures at Catskill academy, gives such an excellent and concise view of this branch of learning; that I venture to publish it, though without the author's consent or knowledge.

New-York, August 30th, 1810.

Dear Sir,

I received yours of the 8th instant, and am happy to be informed of the progress of the Botanical Institution at Catskill under your direction. You have set an example that, I do not doubt, will be followed by many, if not most, of the academies throughout the state. I am satisfied, there is no study so well calculated to occupy the young mind, as the study of natural history. It affords an agreeable exercise to the memory, at the same time that it teaches us the habit of attentively observing those objects which otherwise we pass by with careless indifference. We acquire by this study a habit of analysis, or investigation, that cannot be attained by those pursuits, that are usually made the subjects of education at this early age.

Since my acquaintance with the principles upon which the subject of natural history are arranged, I certainly look with very different eyes upon every object that falls under my view, whether it be the production of nature or of art.

In early life, before our external senses are completely envolved; when we are, in truth, endeavoring to bring them into exercise and use; it has always appeared to me a very absurd practice in our schools, to occupy children with studies of an abstract nature, and which require faculties to comprehend them, that are not yet unfolded.

You have adopted, in my opinion, the true system of education; and very properly address yourself to the senses and to the memory, instead of the faculties of judgment and of reason, which are comparatively of slow growth. By this system of instruction their minds will be stored with truths, that cannot fail to prove useful: not only as they exercise their faculties in acquiring them; but from the information which they also thereby receive upon a very interesting subject of human learning.

But this is not all. In proportion as the mind attaches itself to subjects of this sort, it is diverted from those vicious propensities and pursuits, which otherwise attract attention at their early period of life. Studies of this nature too are no less calculated to improve the morals of youth; inasmuch as the mind is naturally led from the contemplation of the beauties of creation to that intelligence and power which gave them birth. Thereby improving their virtue, as well as their wisdom; which should always be kept in view, inasmuch as happiness is the great end of all our pursuits.

Lord Kaimes, in his Elements of Criticism, has very properly observed, that "among the many branches of educa-"tion, that, which tends to make deep impressions of virtue, "ought to be a fundamental object in a well regulated gov-"ernment. For depravity of manners will render ineffectu-"al the most salutary laws; and in the midst of opulence, "what other means to prevent such depravity, but early and "virtuous discipline."

Such is the system you are pursuing, independent of the wide field to which you will hereafter lead your pupils,

wherein they will learn the uses of plants as articles of medicine, of agriculture, and of the arts. At the same time they will acquire a knowledge of the native productions of our own soil and country, which are yet unexplored.

The state of New-York having passed an act for the purchase of the Botanic garden in the neighborhood of this city, I hope to see among its fruits the establishment of many similar institutions throughout the state; as so many scions from this parent stock. By the diffusion of botanical knowledge, I anticipate the discovery of many valuable plants; which are this moment trodden under foot as unworthy of regard.

To your pupils and their teacher, as first on the field, much praise is due. I doubt not they will reap both pleasure and profit, as the reward of their enterprise. If I can contribute to either, I shall be happy to do it, in any manner that you may suggest.

You have stated to me, that it is the intention of the trustees of your academy to set apart two or three acres for the cultivation of plants, to be made the subjects of instruction; and to erect a green-house for the more valuable exotics. If these be effected, I shall have it in my power to supply you with the necessary plants from the Botanic garden here. Its produce will be sufficient in a short time to furnish plants for a small garden, connected with every academy throughout the state.

I sincerely wish your example may be followed. Nothing could so effectually tend to the investigation of the native products of our country.

I am yours, respectfully,

D. HOSACK.

AMOS EATON, Esq.

In confirmation of the opinion of Dr. Hosack, that subjects of natural history, when taught familiarly and practically, are well adapted to the capacities of those who have not

been liberally educated ; it may not be improper to subjoin the following. It is only the last paragraph, which can be interesting to the public.

Northampton, (Mass.) Nov. 24th, 1817.

To all, whom it may concern :

On the recommendation of the president and faculty of Williams College, together with that of professors Silliman and Ives, of Yale College, and professor Mitchill, of New-York ; Mr. Amos Eaton was employed in this town to deliver a course of lectures on botany, and a course of evening lectures on the elements of chemistry, mineralogy and geology. He has now closed his course, to the entire satisfaction of his employers, and, we think, much to the advantage of his pupils.

As his class consisted chiefly of ladies, and as these branches of learning have not hitherto generally engaged the attention of that sex ; we take the liberty to state, that, from this experiment, we feel authorised to recommend these branches as a very useful part of female education.

CALEB STRONG,
[late Governor of the state of Massachusetts]

SOLOMON WILLIAMS,
[D. D. Pastor of the Presbyterian church in Northampton]

EBENEZER HUNT, [Physician.]

JOSIAH DWIGHT, [County clerk.]

ELIJAH H. MILLS,
[Representative in Congress.]

DAVID HUNT, [Physician.]

LINNEAN SYSTEM OF VEGETABLES.

All Vegetables are divided into twenty-two* CLASSES. These CLASSES are divided into ORDERS. ORDERS are divided into GENERA. GENERA are divided into SPECIES. SPECIES are frequently changed into *varieties*. Varieties, however, are more properly within the province of the Gardner, than of the Botanist; at least the method of procuring varieties.

When a Botanist sees a plant, which he never saw before, and wishes to know its name and uses; he proceeds as follows:

1. He takes the unknown flower in his hand (no unknown plant can be ascertained without the flower) and compares its parts with the description of each class, until he finds the class to which it belongs.

2. He then goes to the orders of that class and finds its order in the same way.

3. Next he goes to the genera of that order, and reads their descriptions, until he finds the genus to which it belongs.

4. At last looks over the species of that genus, until he finds the exact description of his plant.

5. Thus he finds the Apple to be CLASS 12, ORDER, 5, GENUS Pyrus, SPECIES Malus.

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* Linneus divided them into 24 classes. But farther discoveries, since his death, have proved the classes Polyadelphia and Polygamia to be too uncertain and variable to be any longer retained. Persoon, therefore, and other eminent Botanists, have rejected them.

LINNEAN CLASSES.

1. Monandria, 1 stamen, or one sessile anther in the flower.
2. Diandria, 2 stamens, or 2 sessile anthers.
3. Triandria, 3 stamens, or 3 sessile anthers.
4. Tetrandria, 4 stamens, or 4 sessile anthers.
5. Pentandria, 5 stamens, or 5 sessile anthers.
6. Hexandria, 6 stamens, or 6 sessile anthers.
7. Heptandria, 7 stamens, or 7 sessile anthers.
8. Octandria, 8 stamens, or 8 sessile anthers.
9. Enneandria, 9 stamens, or 9 sessile anthers.
10. Decandria, 10 stamens, or 10 sessile anthers.
11. Dodecandria, 12 to 19 stamens, or sessile anthers.
12. Icosandria, about 20 or more, standing on the calyx.
13. Polyandria, always 20 or more, on the receptacle.
14. Didynamia, 4 stamens, 2 of them uniformly the longest.
15. Tetradynamia, 6 stamens, 4 of them uniformly the longest.
16. Monadelphia, stamens united by their filaments in one set, anthers remaining separate.
17. Diadelphia, stamens united by their filaments in two sets (sometimes in one set) flowers papilionaceous.
18. Syngenesia, stamens 5, united by their anthers in one set, flowers compound.
19. Gynandria, stamens stand on the germ, style, or stigma, separate from the base of the calyx and corol.
20. Monoecia, stamens and pistils in separate flowers, on the same plant.
21. Dioecia, stamens and pistils on separate plants.
22. Cryptogamia, stamens and pistils so obscure that the plants can only be classed by natural families.

ORDERS OF EACH CLASS.

	1st.	2d.	3d.	4th.	5th.	6th.	7th.	8th.	10th.	13th.	16th.
Class 1	Mon.	Dig.	———	———	———	———	——	——	——	——	——
2	Mon.	Dig.	Tri.	———	———	———	——	——	——	——	——
3	Mon.	Dig.	Tri.	———	———	———	——	——	——	——	——
4	Mon.	Dig.	———	Tet.	———	———	——	——	——	——	——
5	Mon.	Dig.	Tri.	Tet.	Pen.	———	——	——	——	——	——
6	Mon.	Dig.	Tri.	Tet.	———	Hex	——	——	——	——	——
7	Mon.	Dig.	———	Tet.	———	———	Hep.	——	——	——	——
8	Mon.	Dig.	Tri.	Tet.	———	———	——	——	——	——	——
9	Mon.	———	Tri.	———	———	Hex.	——	——	——	——	——
10	Mon.	Dig.	Tri.	———	Pen.	———	——	——	——	——	——
11	Mon.	Dig.	Tri.	Tet	Pen.	———	——	——	——	——	——
12	Mon.	———	———	———	Pen.	———	——	——	——	Pol.	——
13	Mon.	Dig.	———	———	Pen.	———	——	——	——	Pol.	——
14	Gym.	Ang.	———	———	———	———	——	——	——	——	——
15	Silic.	Siliq.	———	———	———	———	——	——	——	——	——
16	———	———	Tri.	———	Pen.	———	——	——	Dec.	Pol.	——
17	———	———	———	———	———	Hex.	——	Oct.	Dec.	——	——
18	Æq.	Sup.	Frus.	Nec.	Seg.	———	——	——	——	——	——
19	Mon.	Dia.	———	———	Pen.	Hex.	——	——	——	——	——
20	Mon.	Dia.	Tri.	Tet.	Pen.	Hex.	——	——	——	Pol.	Mon.
21	———	Dia.	Tri.	Tet.	Pen.	Hex.	——	Oct.	——	Pol.	Mon.
22	Filices.	Musci.	Hepaticae.	Algae.	Lichenes.	Fungi.	——	——	——	——	——

Note. The numbers at the head of this page are used to express the orders directly under them.

EXPLANATIONS FOR THE PRECEDING PAGE.

Mon. Monogynia, 1 style, or 1 sessile stigma.
Dig. Digynia, 2 styles, &c.
Tri. Trigynia, 3 styles, &c.
Tet. Tetragynia, 4 styles, &c.
Pen. Pentagynia, 5 styles, &c.
Hex. Hexagynia, 6 styles, &c.
Hep. Heptagynia, 7 styles, &c.
Dec. Decagynia, 10 styles, &c.
Pol. Polygynia, more than 10 styles, &c.
Gym. Gymnospermia, seeds naked.
Ang. Angiospermia, seeds in capsules.
Silic. Siliculosa, having pods whose length and breadth are nearly equal.
Siliq. Siliquosa, having pods whose lengths are more than double their breadths.

In the 16th, 17th, 19th, 20th, 21st classes, the names and characters of preceding classes, are taken for orders. In which, Mon. Monandria. Dia. Diandria. Tri. Triandria. Tet. Tetrandria. Pen. Pentandria. Hex. Hexandria. Oct. Octandria. Dec. Decandria. Pol. Polyandria. Mon. Monadelphia.

In the 18th class. 1. Æq. Polygamia Æqualis. 2. Sup. Polygamia Superflua. 3. Frus. Polygamia Frustranea. 4. Nec Polygamia Necessaria. 5. Seg. Polygamia Segregata.

The 1st order in the 18th class is distinguished by having *all the florets* perfect. The 2d, by having those of the *disk* perfect, while those of the *ray* are pistillate. The 3d, by having those of the *disk* perfect, while those of the *ray* are neutral. The 4th, by having those of the *disk* staminate, while those of the *ray* are pistillate. The 5th, by having the florets all perfect, while each floret has a *perianth* of its own.

In the 22d class, the orders are distinguished by natural family characters. 1. *Filices*, (ferns) which bear fruit on the back of the leaves, or in which some part of the leaves seem as it were metamorphosed into a kind of fruit-bearing-

spike. The appendix to this order includes the Pteriodes, which bear fruit on a peculiar appendage. 2. *Musci*, (mosses) which bear, on leafy stems and branches, one-celled capsules, opening at the top, where they are covered by a peculiar lid. 3. *Hepaticae*, (liverworts) which bear, on herbaceous fronds, four-celled capsules opening with four valves. 4. *Algae*, (seaweeds, &c.) which bear in an aquatic or gelatinous frond, vesiculous or filamentous fruit. 5. *Lichenes*, (lichens) which bear fruit, on fibrous, compact or gelatinous fronds; contained in clefts, spangles, puffs, buttons, tubercles, hollows, cellules, globules, shields, targets, orbs, or knobs. 6. *Fungi*, (mushroom, &c.) which are destitute of herbage, consisting of a spungy, pulpy, leathery or woody substance, and bear fruit in a naked dilated membrane, or within the substance of the plant.

Explanations of the characters annexed to the generic descriptions.

The *first number* following the generic description is the number of the natural order of Linneus, to which the genus belongs; the *second number* is that of Jussieu. By referring to the subjoined natural orders of Linneus, the qualities of plants may be so far ascertained, as they depend on these natural affinities.

(*) Placed before one or more generic names, at the end of an order, indicates that these genera sometimes vary from the classes and orders to which they belong, and are found to possess the characters of the class and order under which their names are thus set down.

NATURAL ORDERS OF LINNEUS.

1. Palmæ. Palms and their relatives; as Cocoanut, Frog's bit. *Farinaceous diet.**

2. Piperitæ. Pepper and its relatives. In crowded spikes; as Indian-turnip, Sweet flag. *Tonics* and *Stomachics.*

3. Calamariæ. Reed-like grasses, with culms without joints; as Cat-tail, Sedge. *Coarse cattle fodder.*

4. Gramina. The proper grasses with jointed culms; as Wheat, Rye, Oats, Timothy-grass, Indian-corn. *Farinaceous diet* and *cattle fodder.*

5. Tripetaloideæ. Corol 3-pettalled or calyx 3-leaved; as Water-plantain, Rush-grass, Arrow-head. *Tonics* and *rough cattle fodder.*

6. Ensatæ. Liliaceous plants with sword-form leaves; as Iris, Blue-eyed grass, Virginian spiderwort. *Antiscorbutics* and *Tonics.*

7. Orchideæ. With fleshy roots, stamens on the pistils, pollen glutinous, flowers of singular structure with the germ inferior; as Ladies slipper, Arethusa. *Farinaceous diet* and *Stomachics.*

8. Scitamineæ. Liliaceous corols, stems herbaceous, leaves broad, germ blunt-angular; as Ginger, Turmeric. *Warming Stomachics.*

9. Spathaceæ. Liliaceous plants with spathes; as Daffodil, Onion, Snow-drop. *Secernant Stimulants.*†

10. Coronariæ. Liliaceous plants without spathes; as Lily, Tulip, Star-grass. The nauceous scented and bitter are *Antiscorbutic* and *Cathartic*, the others *Emollient.*

11. Sarmentaceæ. Liliaceous corols with very weak stems; as Smilax, Asparagus, Bell-wort. *Tonics* and *Secernant Stimulants.*

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* The qualities of the natural orders are selected from Milne, Woodville, Thornton and Darwin.

† Which promote the secretions of perspirable matter, &c. &c.

12. Olerace, or Holeracæ. Having flowers destitute of beauty, at least of gay colouring; as Beet, Blight, Pigweed, Dock, Pepperage. If nacous, *Cathartic*; others, *mild Stimulants* and *Nutrientics*.†

13. Succulentæ. Plants with very thick succulent leaves; as Prickly-pear, House-leek, Purslain. *Antiscorbutic* and *Emollient*.

14. Gruinales. Corals with 5 petals, capsules beaked; as Flax, Wood-sorrel, Cranebill. *Tonics* and *Refrigerants*.

15. Inundata. Growing under water and having flowers destitute of beauty; as Hippuris, Pond-weed. *Astringents*.

16. Calycifloræ. Plants without corols, with the stamens on the calyx; as Poet's cassia, Seed buckthorn. *Astringents* and *Refrigerants*.

17. Calycanthemæ. Calyx on the germ or growing to it, flowers beautiful; as Willow-herb, Ludwigia, Œnothera. *Astringents*.

18. Bicornes. Anthers with two strait horns; as Whortleberry, Spicy and Bitter Wintergreen, Laurel. *Astringents*.

19. Hesperides. Sweet-scented, leaves evergreen; as Myrtle, Cloves, Mock-orange. *Astringent* and *Stomachic*.

20. Rotaceæ. Corals wheel-form; as St. John's wort. *Tonics*.

21. Preciæ. Plants with early spring flowers of an elegant specious appearance; as Primrose. *Astringents*.

22. Caryophylleæ. Plants with caryophyllous corols; as Pink, Cockle. *Astringent* and *Secernant Stimulants*.

23. Trihilatæ. Flowers with 3 stigmas, capsules inflated and winged, and generally 3 seeded with distinct hilums; as Nasturtion, Horse-chesnut. *Tonics* and *Nutrientics*.

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† Nutrientics of Darwin, which serve as nutriment merely, without producing any extraordinary effects.

24. Corydales. Corols spurred or anomalous; as Fumatory, Touch-me-not. *Narcotic* and *Antiscorbutic.*

25. Putamineæ. Plants which bear shell-fruit; as Caperbush. *Detergent* and *Antiscorbutic.*

26. Multisiliquæ. Having several pod-form capsules to each flower; as Columbine, Larkspur, Rue, American cowslip. *Cathartic* and *Caustic.*

27. Rhœadeæ. Plants with caducous calyxes, and capsules or siliques; as Poppy, Bloodroot, Celandyne. *Anodyne* and *Antiscorbutic.*

28. Luridæ. Corols lurid, mostly monopetalous; flowers Pentandrous, or Didynamous with capsules; as Tobacco, Thorn-apple, Nightshade, Foxglove. *Narcotic* and *Antiscorbutic.*

29. Campanaceæ. Having bell-form corols, or those whose general aspect is somewhat bell-form; as Morning glory, Bell-flower, Violet, Cardinal flower. *Cathartics* and *Secernant Stimulants.*

30. Contortæ. Corols twisted or contorted; as Milkweed, Periwinkle, Choak-dog. *Cathartics* and *Antiscorbutics.*

31. Vepreculæ. Having monophyllous calyxes, coloured like corols; as Leatherwood, Thesium. *Antiscorbutic* and *Emetic.*

32. Papilionaceæ. Having papilionaceous flowers; as Peas, Beans, Locust tree, Clover. *Emollient, Diuretic, Nutrientic.*

33. Lomentaceæ. Having legumes or loments, but not perfect papilionaceous flowers with united filaments; as Cassia, Sensitive plant. *Emollient, Astringent, Cathartic.*

34. Cucurbitaceæ. Fruit pumpkin-like, anthers mostly united; as Melons, Cucumbers, Passion-flower. *Cathartic* and *Refrigerant.*

35. Senticosæ. Prickly or hairy, with polypetalous corols and a number of seeds either naked or slightly covered; as Rose, Raspberry, Strawberry. *Astringent* and *Refrigerant.*

36. Pomaceæ. Having many stamens on the calyx, and drupaceous or pomaceous fruit; as Pear, Currant, Cherry, Peach. *Refrigerants.*

37. Columniferæ. Stamens united in the form of a column; as Hollyhoc, Mallows, Cotton. *Emollient.*

38. Tricoccæ. Having 3-celled capsules; as Castor oil plant, Spurge, Box. *Cathartic.*

39. Siliquosæ. Having silique pods; as Cabbage, Mustard, Shepherd-purse. *Diuretic, Antiscorbutic, Nutrientic.*

40. Personatæ. Having personate corols; as Snapdragon, Monkey-flower. *Deobstruents* and *Cathartics.*

41. Asperifoliæ. Corols monopetalous, with 5 stamens, seeds 4, naked, leaves rough; as Comfrey, Stone-seed (lithospermum.) *Astringents* and *Deobstruents.*

42. Verticillata. Having Labiate flowers; as Sage, Thyme, Catmint, Motherwort. *Stomachics* and *Astringents.*

43. Dumosæ. Bushy pithy plants with small flowers, petals in 4 or 5 divisions; as Sumach, Elder, Holly. *Tonic* and *Cathartic.*

44. Sepiariæ. Having mostly tubular divided corols with few stamens; being ornamental shrubs; as Lilac, Jasmine. *Astringent.*

45. Umbellatæ. Flowers in umbels with 5-petalled corols, stamens 5, styles 2, and 2 naked seeds; as Fennel, Dill, Carrot, Poison-hemlock. *Stomachic* and *Narcotic.*

46. Hederaceæ. Corols 5-cleft, stamens 5 to 10, fruit berry-like on a compound raceme; as Grape, Ginseng, Spikenard. *Tonics* and *Refrigerants.*

47. Stellatæ. Corols 4-cleft, stamens 4, seeds 2, naked, leaves mostly whorled; as Bedstraw, Dogwood, Venus' pride. *Tonics* and *Deobstruents.*

48. Aggregatæ. Having aggregate flowers; as Button-bush, Marsh-rosemary. *Tonics* and *Secernant Stimulants.*

49. Compositæ. All the compound flowers; as Sunflower, Boneset, Tansey, Thistle. *Tonics* and *Secernant Stimulants.*

50. Amentaceæ. Bearing pendant aments ; as Hazle, Oak, Chesnut, Willow. *Astringents.*

51. Coniferæ. Bearing strobiles ; as Pine, Juniper, Cedar. *Tonics* and *Stomachics.*

52. Coadunatæ. Several berry-like pericarps, which are adnate ; as Tulip-tree, Magnolia. *Tonics.*

53. Scabridæ. Leaves rough, flowers destitute of beauty ; as Nettle, Hemp, Hop, Elm. *Astringents.*

54. Miscellaneæ. Plants not arranged by any particular character ; as Pond-lily, Poke-weed, Amaranth. Their qualities are *various.*

55. Filices. All ferns ; as Brakes, Maidenhair. *Secernant Stimulants.*

56. Musci. All mosses ; as Polytrichum. *Cathartics* and *Secernant Stimulants.*

57. Algæ. All Liverworts, Lichens and Sea-weeds ; as Jungermannia, Fucus, Usnea. *Tonics.*

58. Fungi. All fungusses ; as Mushroom, Toadstool, Puff-ball, Touchwood, Mould. *Tonics* and *Cathartics.*

RULES FOR DISTINGUISHING POISONOUS PLANTS FROM THOSE WHICH ARE NOT POISONOUS.

Plants not poisonous.

1. Plants with a *glume* calyx, never poisonous. As Wheat, Indian-corn, Foxtail-grass, Sedge-grass, Oats. Linneus.

2. Plants whose staments *stand on the calyx*, never poisonous. As Currant, Apple, Peach, Strawberry, Thorn. Smith, page 304, Big. ed.

3. Plants with *cruciform* flowers, rarely if ever poisonous. As Mustard, Cabbage, Watercress, Turnip. Smith, page 337, Big. ed.

4. Plants with *papilionaceous* flowers rarely, if ever, poisonous. As Pea, Bean, Locust-tree, Wild-indigo, Clover. Smith, page 344, Big. ed.

5. Plants with *labiate* corols bearing seeds without pericarps, never poisonous. As Catmint, Hyssop, Mint, Motherworth, Marjoram. Smith, page 335, Big. ed.

6. Plants with *compound* flowers rarely poisonous. As Sunflower, Dandelion, Lettuce, Burdock. Milne.

Poisonous Plants.

1. Plants with 5 stamens and one pistil, with a dull-coloured *lurid* corol, and of a nauseous sickly smell, always poisonous. As Tobacco, Thorn-apple, Henbane, Nightshade. The degree of poison is diminished where the flower is brighter coloured and the smell is less nauseous. As potatoes are less poisonous, though of the same genus with nightshade. Smith, page 320, Big. ed.

2. *Umbelliferous plants* of the aquatic kind and a nauseous scent are always poisonous. As Water-hemlock, Cow-parsley. But if the smell is pleasant and they grow in dry land, they are not poisonous. As Fennel, Dill, Coriander, Sweet-cicily. Smith, page 322, Big. ed.

3. Plants with *labiate* corols, and seeds in capsules, frequently poisonous. As Snap-dragon, Fox-glove.

4. Plants, from which issues a *milky juice* on being broken, are poisonous, unless they bear compound flowers. As Milkweed, Dogbane. Milne's Contortæ and Lactescentia.

5. Plants having any *appendage* to the calyx or corol, and eight or more stamens, generally poisonous. As Columbine, Nasturtion. Linneus.

The most general rule is,

Plants with few stamens, not frequently poisonous, except the number be five; but if the number be 12 or more, and the smell nauseous, heavy and sickly, the plants are generally poisonous. Milne's Multisiliquæ and Sapor.

Note. Many plants possess some degree of the narcotic principle, which are still by no means hurtful. But the use of such plants is to be deferred, till fully investigated.

NATURAL ORDERS OF JUSSIEU.

The Linnean artificial arrangement is the only system hitherto brought into use by which we are enabled to find out a plant with which we are unacquainted. But after we have determined a plant by the aid of that system, we should proceed to examine its affinities or relations to other plants.

In the annexed arrangement, Jussieu has distributed all plants into 100 orders, according to their natural affinities. If we are acquainted with any plant in an order, we may infer something from that respecting the qualities of the whole order. Therefore, when we are analyzing a plant, and suppose we have hit upon the right genus, we should turn to its natural order, as referred to by the second number at the end of the generic description, and see whether it is there associated with any plants with which we are acquainted. Then, by comparing it with its associates, we may not only be considerably aided in settling our opinion respecting the right naming of the plant, but may derive much satisfaction from considering its affinities to the rest of that family of plants.

1st Division. *Seeds without lobes or cotyledons.*

1. Fungi. All fungusses.

Agaricus, 117. Merulius, 117. Boletus, 117. Thaelacphora, 117. Hydnum, 117. Morellus, 118. Clavaria, 118. Clathrus, 118. Peziza, 118. Cyathus, 118. Lycoperdon, 118. Fuligo, 118. Stemonitis, 118. Æcidium, 118. Sphaeria, 118. Sclerotium, 118. Uredo, 118. Tubercularia, 119. Mucor, 119. Monila, 119. Xylostroma, 119.

2. Algæ. Lichens and Seaweeds.

Fucus, 110. Ulva, 110. Conferva, 111. Lepraira, 111. Spiloma, 111. Variolaria, 112. Opegraphia, 112. Lecidea. 112. Calicium, 112. Gyrophora, 113. Bathelium, 113. Verrucaria, 113. Endocarpon, 113. Thelotrema, 113 Sphaerophoron, 114. Urceolaria, 114. Isidium 114. Parmelia, 115.

Sicta, 115. Peltidea, 115. Cetraria, 116. Corniculariæ, 116. Usnea, 116. Stereocaulon, 117. Baemyces, 117.

Hepaticæ. Liverwort.

Jungermannia, 109. Marchantia, 109. Anthoceros, 110. Riccia, 110.

4. Muscı. Mosses.

Phascum, 106. Sphagnum, 106. Gymnostomum, 106. Tetraphis, 106. Splachnum, 106. Grimmia, 107. Maschalocarpus, 107. Dicranum, 107. Trichostomum, 107. Polytrichum, 107. Didymodon, 107. Barbula, 107. Diphascum, 107. Othotricum, 107. Neckera, 108. Timmia, 108. Climacium, 108. Meesia, 108. Leskea, 108. Bartramia, 108. Mnium, 108. Bryum, 108. Hypnum, 108. Fontinalis, 109. Buxbaumia, 109. Funaria, 109.

5. Filices. Ferns.

Acrostichum, 101. Polypodium, 102. Onoclea, 102. Blechnum, 102. Pteris, 102. Vitraia, 102. Asplenium, 102. Scolopendrium, 103. Woodwardia, 103. Adiantum, 103. Aspidium, 103. Dicksonia, 104. Woodsia, 104. Cheilanthus, 104. Schizaea, 104. Osmunda, 104. Ligodium, 105. Botrichium, 105. Ophioglossum, 105. Psilotum, 105. Lycopodium, 105. Equisetum, 106.

6. Naiades. Water plants.

Hippuris, 25. Callitriche, 25. Tillaea, 36. Potamogeton, 36. Ruppia, 36. Saururus, 53. Fuvialis, 90. Chara, 90. Najas, 90. Lemna, 90. Podostemum, 90. Ceratophyllum, 93. Myriophillum, 94.

2d. Division. *Seeds with a single lobe, or one cotyledon.*

7. Aroideæ. Indianturnip-like.

Pothos, 35. Orontium, 51. Acorus, 51. Calla, 94. Arum, 94.

8. Typhæ. Cattail-like.

Typha, 91, Sparganium, 91.

9. Cyperoidæ. Cyperus-like.

Kyllingia, 28. Schoenus, 28. Rhynchospora, 29. Cyper-

us, 29. Mariscus, 29. Dulichium, 29. Scirpus, 29. Eriophorum, 29. Trichophorum, 29. Fuirena, 29. Limnetis, 29. Carex, 91. Scleria, 91.

10. Gramineæ. The proper grasses.

Cinna, 25. Anthoxanthum, 27. Cenchrus, 29. Oryzopsis, 30. Panicum, 30. Digitaria, 30, Paspalum, 30. Aristida, 30. Stipa, 30. Alopecurus, 30. Phalaris, 30. Hordeum, 30. Milium, 30. Agrostis, 30. Saccharum, 31. Muhlenbergia, 31. Leersia, 31. Trichodium, 31. Phleum, 31. Aira, 31. Elymus, 31. Melica, 31. Eleusine, 31. Secale, 31. Triticum, 31. Lolium, 32. Atheropogon, 32. Uniola, 32. Briza, 32. Sorghum, 32. Dactylis, 32. Poa, 32. Festuca, 32. Bromus, 32. Avena, 32. Arundo, 33. Andropogon, 33. Holcus, 33. Oryza, 51. Zea, 91. Trigsacum, 91. Coix, 91. Zizania, 93.

11. Palmæ. Palm-like.

We have no plants in this order. The cocoanut, &c. are placed here.

12. Asparagi. Asparagus-like.

Dracæna, 50. Asparagus, 50. Convallaria, 51. Medeola, 52. Trillium, 52. Smilax, 100.

13. Junci. Rush-like,

Commelina, 28. Leptanthus, 28. Heteranthera, 28. Xyris, 28. Tradescantia, 48. Juncus, 51. Melanthium, 52. Veratrum, 52. Helonias, 52. Xerophyllum, 52. Scheuchzeria, 52. Triglochin, 53. Alisma, 53. Eriocaulon, 92. Sagittaria, 94.

14. Liliaceæ. Lily-like.

Erythronium, 50. Lilium, 50. Tulipa, 50. Fritillaria, 51. Uvularia, 51. Asphodelus, 51.

15. Bromelia. Pineapple-like.

Bromelia, 48.

16. Asphodeli. Asphodel-like.

Allium, 49. Aletris, 50. Polyanthes, 50. Hyacynthus, 50. Narthecium, 51. Ornithogalum, 51. Tofielda, 52.

17. Narcissi. Daffodil-like.

Amaryllis, 49. Hypoxis, 49. Galanthus, 49. Narcissus, 49. Pontederia, 49. Hemerocallis, 50.

18. Irides. Iris-like.

Crocus, 27. Iris, 28. Dilatris, 28. Sisyrinchium, 75.

19. Musæ. Banana-like.

We have no plants of this order. The banana is placed here.

20. Cannæ. Indianreed-like.

We have no plants of this order. The ginger is placed here.

21. Orchideæ. Orchis-like.

Orchis, 88. Limmodorum, 89. Satyrium, 89. Neottia, 89. Epipactis, 89. Cimbidium, 89. Malaxis, 89. Arethusa, 89. Cypridium, 89.

22. Hydrocharides. Frogbit-like.

Proserpinca, 33. Floerkea, 49. Sarracenia, 64. Nymphaea, 64. Nuphar, 65. Vallisneria, 97.

3d Division. *Seeds with two lobes, or two cotyledons.*

23. Aristolochiæ. Birthwort-like.

Asarum, 60. Aristolochia, 90.

24. Æleagni.

Thesium, 43. Hippophae, 98. Nyssa, 99.

25. Thymeleæ.

Dirca, 54. Daphne, 54.

26. Proteæ. Silvertree-like.

We have no plants of this order. The silvertree is placed here.

27. Lauri. Camphor-like.

Laurus, 55.

28. Polygoneæ. Buckwheat-like.

Rumex, 53. Polygonum, 55. Rheum, 55. Lapathum, 100.

29. Atriplices. Orache-like.

Salicornia, 25. Blitum, 25. Rivina, 36. Salsola, 44. Chenopodium, 44. Beta, 44. Atriplex, 44. Spinacia, 99. Acnida, 99. Phytolacca, 60.

30. Amaranthi. Cockscomb-like.

Gomphrenia, 42. Celosia, 42. Illecebrum, 42. Amaranthus, 93.

31. Plantagines. Plantain-like.

Plantago, 34.

32. Nyctagines.

Mirabilis, 41. Ambrosia, 93.

33. Plumbagines. Leadwort-like.

Statice, 48.

34. Lysimachiæ. Loosestrife-like.

Utricularia, 26. Anagallis, 38. Lysimachia, 38. Dodecatheon, 38. Menyanthes, 38. Villarsia, 38. Primula, 38. Hottonia, 38. Samolus, 40. Trientalis, 53. Buchnera, 72.

35. Pediculares. Lousewort-like.

Veronica, 26. Callistachia, 26. Obolaria, 70. Orobanche, 71. Bartsia, 71. Rhinanthus, 71. Euphrasia, 71. Melampyrum, 71. Erinus, 72. Pedicularis, 72. Pentstemon, 73.

36. Acanthi. Bearbreach-like.

Justicia, 26. Ruellia, 72.

37. Jasmineæ. Jasmine-like.

Jasminum, 25. Ligustrum, 26. Chionanthus, 26. Syringa, 26. Fraxinus, 98.

38. Vitices. Chastetree-like.

Callicarpa, 34.

39. Labiatæ. Rigent-flowered plants.

Lycopus, 26. Monarda, 27. Rosmarinus, 27. Salvia, 27.

Collinsonia, 27. Teucrium, 67. Isanthus, 68. Verbina, 68. Lavandula, 68. Lameum, 68. Brachystemum, 68. Pycnantheum, 68. Nepeta, 68. Hyssopus, 68. Mentha, 68. Stachys, 68. Galeopsis, 69. Satureja, 69. Betonica, 69. Leonuris, 69. Marrubium, 69. Ballota, 69. Cunila, 69. Hedeoma, 69. Glechoma, 69. Melissa, 69. Trichostema, 69. Ocymum, 70. Scutellaria, 70. Origanum, 79. Thymus, 70. Clinopodium, 70. Prunella, 70. Phryma, 70.

40. Scrophulariæ. Figwort-like.

Gratiola, 26. Chironia, 39. Lindernia, 26. Dracocephalum, 70. Scwalbea, 71. Limosella, 71. Zapania, 71. Browallia, 71. Scrophularia, 71. Antirrhinum, 72. Gerardia, 72. Degitalis, 72. Mimulus, 72. Chelone, 72.

41. Solaneæ. Nightshade-like.

Lycium, 34. Datura, 38. Nicotiana, 38. Verbascum, 39. Atropa, 39. Phacelia, 39. Hyoscyamus, 39. Solanum, 40. Physalis, 40. Capsicum, 40. Diospyros, 100.

42. Boragineæ. Borage-like.

Pulmonaria, 36. Cerinthe, 36. Lithospermum, 36. Cynoglossum, 37. Batschia, 37. Anchusa, 37. Myosotis, 37. Heliotropium, 37. Onosmodium, 37. Barago, 37. Symphitum, 37. Echium, 37. Hydrophillum, 37. Nolana, 38.

43. Convolvuli. Bindweed-like.

Convolvulus, 38. Diapensia, 39. Ipomaea, 39. Pyxidanthera, 39. Cuscuta, 43.

44. Polemonia. Greekvalerian-like.

Phlox, 39. Polemonium, 39.

45. Bignoniæ. Trumpetflower-like.

Catlapa, 26. Bignonia, 72. Martynia, 73.

46. Gentianæ. Gentian-like.

Spigelia, 38. Swertia, 43. Gentiana, 43. Frasera, 34.

47. Apocyneæ. Dogbane-like.

Vinca, 40. Periploca, 43. Apocynum, 43. Nerium, 43. Asclepias, 89. Cynanchum, 90.

48. Sapota.

We have no plants of this order.

49. Guaiacanæ. Lignumvitæ-like.

We have no plants of this order. The lignum-vitæ is placed here.

50. Rhododendra. Rosebay-like.

Azalia, 40. Itea, 42. Menziesia, 54. Rhodora, 56. Rhododendron, 57. Kalmia, 57. Ledum, 57. Leiophyllum, 57.

51. Ericæ. Heath-like.

Oxycocceus, 53. Erica, 54. Clethra, 56. Pyrola, 56. Chimaphila, 56. Andromeda, 57. Vaccinium, 57. Epigaea, 57. Gualtheria, 57. Arbutus, 57. Hundsonia, 60. Empetrum, 98.

52. Campanulaceæ. Bellflower-like.

Campanula, 41. Lobelia, 41.

53. Cichoraceæ. (Compound.) Endive-like.

Tragopogon, 81. Apargia, 82. Leontodon, 82. Prenanthes, 82. Lactuca, 82. Hieracium, 82. Sonchus, 82. Hyoseris, 82. Krigia, 83. Cichorium, 83.

54. Cinarocephalæ. (Compound.) Bearing headform flowers.

Cynara, 82. Liatris, 83. Cnicus, 83. Carthamus, 83. Onopordon, 83. Carduus, 83. Arctium, 83.

55. Corymbiferæ. (Compound.) Corymb-bearing.

Scorzonera, 82. Picris, 83. Tolpis, 83. Scholymus, 83. Vernonia, 83. Sparganophorus, 84. Bidens, 84. Kuhnia, 84. Eupatorium, 84. Ethulia, 84. Mikania, 84. Cacalia, 84. Balsamita, 84. Baccharis, 84. Conyza, 85. Gnaphalium, 85. Artemisia, 85 Tanacetum, 85 Chrysanthemum, 85. Zinnia, 85. Tagetes, 85. Bellis, 85 Pyrethrum, 85. Arnica, 86. Doronicum, 86. Inula, 86 Erigeron, 86. Solidago, 86 Senecio, 86. Tussillago, 86. Cineraria, 86. Aster, 86. Heliopsis, 86. Buphthamum, 87.

Heelenium, 87. Boltonia, 87. Matricaria, 87. Anthemis, 87. Achillea, 87. Verbesina, 87. Rudbeckia, 87. Helianthus, 87. Coreopsis, 88. Centaurea, 88. Silphium, 88. Polymnia, 88. Calendula, 88. Iva, 88. Elephantopos, 88. Echinops, 88.

56. Dipsaceæ. Teazel-like.

Valeriana, 27. Fedia, 27. Dipsacus, 35.

57. Rubiaceæ. Madder-like.

Houstonia, 34. Mitchella, 34. Cephalanthus, 34. Rubia, 35. Scabiosa, 35. Galium, 35.

58. Caprifolia. Honeysuckle-like.

Linnaea, 34. Cornus, 35. Lonicera, 40. Xylosteum, 40. Diervilla, 41. Hedera, 42. Viburnum, 47. Sambucus, 47. Triosteum, 41

59. Araliæ. Spikenard-like.

Panax, 44. Aralia, 48.

60. Umbelliferæ. Bearing umbels.

Eryngum, 44. Coriandrum, 45. Hydrocotile, 45. Sanicula, 45. Heracleum, 45. Caucalis, 45. Daucus, 45. Angelica, 45. Sison, 45. Ferula, 45. Ligusticum, 45. Ammi, 45. Sium, 46. Selinum, 46. Conium, 46. Chaerophyllum, 46. Myrrhis, 46. Cicuta, 46. Imperatoria, 46. Smyrnium, 46. Pastinaca, 46. Anethum, 46. Apium, 47. Carum, 47.

61. Ranunculaceæ. Crowfoot-like.

Zanthorhiza, 48. Actaea, 46. Podophyllum, 64. Paeonia, 65. Delphinium, 65. Aconitum, 65. Aquilegia, 65. Nigella, 66. Hydrastris, 66. Clematis, 66. Thalictrum, 66. Helleborus, 66. Coptis, 66. Caltha, 66. Anemone, 66. Hydropeltis, 66. Hepatica, 66. Nelumbium, 67. Ranunculus, 67. Trollius, 67. Atragene, 67. Adonis, 67. Caulophyllum, 48.

62. Papaveraceæ. Poppy-like.

Chelidonium, 63. Papaver, 64. Sanguinaria, 64. Ar-

gemone, 65. Cimicifuga, 65. Fumaria, 77. Corydalis, 78. Polygala, 78.

63. Cruciferæ. Bearing cruciform flowers.

Myagrum, 73. Draba, 73. Lunaria, 73. Bunias, 73. Isatis, 73. Alyssum, 73. Cochlearia, 74. Iberis, 74. Lepidium, 74. Thlaspi, 74. Arabis, 74. Turritis, 74. Dentaria, 74. Hesperis, 74. Erysimum, 74. Brassica, 75. Raphanus, 75. Cheiranthus, 75. Cardamine, 75. Sisymbrium, 75. Sinapis, 75.

64. Capparides. Caperbush-like.

Parnassia, 47. Drosera, 48. Cleome, 49. Reseda, 61. Capparis, 64.

65. Sapindi. Soapberry-like.

Cardiospermum, 55.

66. Aceræ. Maple-like.

Æsculus, 53. Acer, 54.

67. Malpighiæ.

We have no plants of this order.

68. Hyperica. John's wort-like.

Ascyrum, 64. Hypericum, 65.

69. Guttiferæ. Bearing secreted drops.

We have no plants of this order.

70. Aurantia. Orange-like.

Citrus, 64.

71. Melia. Beadtree-like.

Melia, 56. Thea, 64.

72. Vites. Grape-like.

Vitis, 41. Ampelopsis, 42.

73. Gerania. Cranebill-like.

Impatiens, 42. Linum, 48. Tropoeolum, 55. Dionaea, 57. Oxalis, 59. Erodium, 76. Pelagonium, 76. Geranium, 76.

74. Malvaceæ. Mallows-like.

Gordonia, 76. Napaea, 77. Sida, 77. Hibiscus, 77. Malva, 77. Althaea, 77. Lavatera, 77. Gossipium, 77.

75. Magnoliæ. Magnolia-like.

Liriodendron, 67. Magnolia, 67.

76. Annonæ. Papaw-like.

Annona, 66. Porcelia, 67.

77. Menispermia. Moonseed-like.

Menispermum, 100.

78. Berberides. Barberry-like.

Hamamelis, 36. Berberris, 48.

79. Tiliaceæ. Basswood-like.

Tilia, 64.

80. Cisti. Rockrose-like.

Viola, 42. Cistus 64.

81. Rutaceæ. Rue-like.

Ruta, 56.

82. Caryophylleæ. Pink-like.

Holosteum, 33. Lechea, 33. Mollugo, 33. Queria, 33. Sagina, 36. Sarothra, 47. Alsine, 47. Dianthus, 58. Saponaria, 58. Arenaria, 58. Stellaria, 59. Silene, 59. Cucubalus, 59. Spergula, 59. Agrostemma, 59. Cerastium, 60. Lychnis, 60.

83. Semperviva. Liveforever-like.

Sedum, 59. Penthorum, 59. Sempervivum, 61.

84. Saxifraga. Saxifrage-like.

Heuchera, 44. Oldenlandia, 35. Saxifraga, 58. Tiarella, 58. Mitella, 58.

85. Cacti. Pricklypear-like.

Ribes, 42. Hydrangea, 58. Hortensia, 59. Cactus, 62.

86. Portulaceæ. Purslane-like.

Claytonia, 42. Tamarix, 47. Chrysosplenium, 55. Scleranthus, 58. Portulacca, 60.

87. Ficoidea. Fig-like.

Mesembryanthemum, 63. Ficus, 98.

88. Onagræ.

Circaea, 27. Ludwigia, 35. Gaura, 53. Epilobium, 54. Œnothera, 54.

89. Myrti. Myrtle-like.

Decumaria, 60. Philadelphus, 61. Mystus, 62.

90. Melastomæ.

Rhexia, 54. Melastoma, 56.

91. Salicariæ.

Ammannia, 35. Isnardia, 35. Glaux, 43. Lythrum, 60. Cuphea, 60.

92. Rosaceæ. Rose-like.

Sanguisorba, 34. Agrimonia, 61. Prunus, 61. Armeniaca, 61. Punica, 62. Amygdalus, 62. Crataegus, 62. Sorbus, 62. Aronia, 62. Mespilus, 62. Pyrus, 62. Spiraea, 62. Rosa, 63. Rubus, 63. Dalibarda, 63. Fragaria, 63. Potentilla, 63. Geum, 63. Comarum, 63. Calycanthus, 63. Poterium, 94.

93. Leguminosa. Bearing legumes.

Podalyria, 56. Cercis, 56. Cassia, 56. Mimosa, 76. Petalostemon, 77. Amorpha, 78. Lupinus, 78. Crotolaria, 78. Genista, 78. Spartium, 78. Arachis, 78. Ulex, 78. Pisum, 79. Lathyrus, 79. Vicia, 79. Robinia, 79. Phaseolus, 79. Dolichos, 79. Colutea, 79. Glycyrrhiza, 79. Indigofera. 79. Vexillario, 80. Galactia, 80. Glycine, 80. Galega, 80. Medicago, 80. Trigonella, 80. Astragalus, 80. Trifolium, 80. Melilotus, 80. Lespedeza, 81. Hedysarum, 81. Stylosanthes, 81. Æschynomene, 81. Geditschia, 100.

94. Terebinthi.

Rhus, 47. Juglans, 94. Zanthoxylum, 99.

95. Rhamni. Buckthorn-like.

Ilex, 36. Rhamnus, 41. Ceanothus, 41. Celastrus, 41. Euonymus, 41. Staphylea, 47. Prinos, 49.

96. Euphorbiæ. Spurge-like.

Euphorbia, 61. Esula, 61. Buxus, 93. Acalypha, 96. Ricinus, 96. Phyllanthus, 96.

97. Cucurbitaceæ. Pumpkin-like.

Passiflora, 76. Momordica, 97. Sycios, 97. Cucurbita, 97. Cucumis, 97. Melothria, 97.

98. Urticæ. Nettle-like.

Boehmeria, 92. Urtica, 92. Parietaria, 92. Morus, 92. Serpicula, 93. Humulus, 99. Canabis, 99.

99. Amentaceæ. Bearing pendant aments.

Ulmus, 44. Celtis, 44. Fothergilla, 65. Comptonia, 92. Alnus, 92. Quercus, 94. Fagus, 95. Castanea, 95. Betula, 95. Carpinus, 95. Ostrya, 95. Corylus, 95. Platanus, 95. Liquidambar, 95. Salix, 97. Myrica, 98. Broussonetia, 98. Populus, 100.

100. Coniferæ. Bearing strobiles, or cones.

Pinus, 96. Cupressus, 96. Thuja, 96. Juniperus, 101. Taxus, 101.

A

SYSTEM OF GENERA,

FOR THE

NORTHERN AND MIDDLE STATES.

CLASS I. MONANDRIA.

Order I. Monogynia.

Salicornia. Calyx inflated, entire: corol o: seed 1, inclosed in the calyx. 12. 29—(samphire.)

Hippuris. Calyx superior, obsolete, with a 2-lobed margin: corol o: seed 1: stigma simple. 15. 6—(marestail.)

* Scirpus, Cyperus.

Order II. Digynia.

Callitriche. Calyx inferior, 2-leaved: capsule membranaceous and margined: (flowers sometimes monoecious, and by some the calyx is called the corol.) 12. 6—(water-starwort.)

Blitum. Calyx 3-cleft, berry-like: corol o: seed 1. 12. 29—(blite.)

Cinna. Calyx, 1-flowered glume, 2-valved: corol a 2-valved glume: seed 1. 4. 10.

* Uniola.

CLASS II. DIANDRIA.

Order I. Monogynia.

A. *Corol inferior, 1-petalled regular: border, except in Jasminum, 4-parted.*

Jasminum. Corol salver-form, 5 to 8—cleft: berry 2-seeded, each seed solitary, arilled. 44. 37—(jasmine.) Exotic.

LIGUSTRUM. Calyx 4-toothed : corol with ovate divisions : berry 4-seeded. 44. 37—(prim.)

CHIONANTHUS. Corol 4-cleft, with very long divisions : nucleus of the drupe striate-fibrous. 44. 37—(fringe tree.)

SYRINGA. Corol salver-form : capsule 2-celled. 44. 37—(lilac.) Exotic.

B. *Corol inferior, 1-petalled, irregular : fruit capsular.*

UTRICULARIA. Calyx 2-leaved, equal : corol ringent, spurred : capsule 1-celled, globular. 24. 34—(bladder-wort.)

CATALPA. Corol 5-cleft : calyx 2-leaved : capsule 2-celled. 40. 45—(catalpa tree.)

JUSTICIA. Calyx simple or double, 5-parted : corol ringent or nearly equal : capsule 2-celled, bursting with an elastic claw : partitions transverse. 40. 36—(malabar nut.) Exotic.

GRATIOLA. Calyx 5-leaved, sometimes with a 2-leaved calycle : corol 4-cleft, 2-lipped, reversed : stamens 4 ; (2 of them barren) stigma 2-lipped : capsule 2-celled. 40. 40. (hedge-hysop.)

LINDERNIA. Calyx 5-parted, equal : corol ringent, the upper lip very short, the lower one 3-cleft, 2-keeled at the base : anthers cohering by pairs : stigma bilamellate : capsule 2-celled, 2-valved, the partition parallel to the valves. 40.

VERONICA. Calyx 4-parted : corol 4-cleft, lower division smaller : capsule 2-celled. 40. 35—(speedwell.)

CALLISTACHIA. Calyx 4-parted : corol tubular, 4-cleft, with one division smaller : capsule ovate, 2-celled. (Culver's physic.) This genus was taken from the Veronica by M. Rafinesque. Not having his generic description, I am compelled to take it from my specimens ; perhaps inaccurately. 40. 35.

C. *Corol inferior, 1-petalled, irregular : seeds naked.*

LYCOPUS. Calyx tubular, half 5-cleft : corol

tubular, 4-cleft, nearly equal, 1 division emarginate: stamens distant: seeds 4, retuse. 42. 39—(water-horehound.)

Monarda. Calyx cylindric, striated, 5-toothed: corol ringent, upper lip linear, involving the filaments. 42. 39—(Oswego tea, mountain-mint.)

Rosmarinus. Corol ringent, upper lip 2-parted: filaments long, curved, simple, with a tooth. 42. 39—(rosemary.)

Salvia. Calyx tubular, 2-lipped, underlip 2-toothed: corol ringent: filaments transversely affixed to a pedicel. 42. 39—(sage.)

Collinsonia. Calyx tubular, 2-lipped: corol unequal, underlip many-cleft, capiliary: one perfect seed. 40. 39—(horse-balm.)

D. *Corol superior.*

Circaea. Calyx 2-leaved: corol 2-petalled: capsule hispid, 2-celled, not gaping; cells 1-seeded. 48. 88—(enchanter's nightshade.)

* Cunila, Schoenus, Scirpus, Verbena.

Order II. Digynia.

Anthoxanthum. Calyx, glume 2-valved, 1-flowered: corol glume 2-valved, acuminate, awned: seed 1. 4. 10—(sweet vernal grass.)

* Holcus, Festuca, Saccharum.

CLASS III. TRIANDRIA.

Order I. Monogynia.

A. *Flowers superior.*

Valeriana. Calyx 0, or with an extremely small margin: corol 1-petalled, 5-cleft, base gibbous: seed 1: stamens, 1, 2, 3 and 4, exsert. 48. 56—(valerian.) Exotic.

Fedia. Calyx 3 to 6-toothed: corol 5-parted: nut 2 or 3-celled: seed naked, or crowned with a tooth. 48. 56—(lamb-lettuce.)

Crocus. Spathe radical; corol funnel-form,

with a long slender tube: stigma deep-gashed, crested. 6. 18—(saffron.) Exotic.

Iris. Calyx, spathe 2-valved: corol 6-parted, divisions alternately reflected; stigmas petal-like. 6. 18—(flower-de-luce, iris or flag.)

Dilatris. Corol 6-petalled, superior, hirsute: the third filament less than the rest: stigma simple: capsule globose, 3-celled, crowned.

B. *Flowers inferior.*

Commelina. Calyx, spathe cordate: corol 6-petalled: nectaries 3, cross-form, inserted on peculiar filaments: capsule sub-globose, 3-celled. 6. 13—(day-flower.)

Leptanthus. Calyx, spathe 1-flowered: corol long-tubular; border 6-parted with the stamens on the divisions, anthers uniform, filaments equal: capsule 3-celled, many-seeded, gaping at the angles. 6. 13.

Heteranthera. Calyx, spathe 1-flowered: corol with a long slender tube, border 6-parted with the stamens on the divisions; anthers of two different forms, filaments of unequal lengths: capsules 3-celled, many seeded, dehiscent at the angles. 6. 13—(odd shives.)

Xyris. Calyx, glume 2-valved, in a head: corol 3-petalled, equal, crenate: capsule 3-valved, many seeded. 6. 13—(yellow-eyed-grass.)

C. *Flowers grassy: valves of the calyx glume-like: corol none.*

Kyllingia. Spike (or ament) roundish-oblong, sessile, or umbel-like: calyx of 2 unequal leaves or valves, 1-flowered: corol 2-valved, or 2 leaved, greater than the calyx: seed 3-sided. (stamens and stigmas vary from 1 to 3.) 3. 9—(false bog-rush.)

Schoenus. Spikelets sub-convolute, acute; scales heaped in fascicles, outer ones dry, shining: corol 0: seed 1, roundish, naked or surrounded with bristles. 3. 9—(bog-rush.)

Rhynchospora. Scales of the calyx fascicled into a spike, lower ones empty: corol 0: styles permanent at the base: bristles at the base of the seeds. 3. 9.

Cyperus. Glumes chaffy, scales imbricated 2-ways: seed single, beardless: spikelets compressed. 3. 9.

Mariscus. Flowers distinct, subimbricate in a spike: calyx 2-valved, about 3-flowered: corols 2-valved, the lower one embracing the upper: style 3-cleft. 3. 9.

Dulichium. Spikes sub-racemed, proceeding from the axils of the leaves; spikelets linear-lanceolate, sub-compressed: scales somewhat 2-ranked, closely embracing: styles very long, 2-cleft: germ with small bristles rough backwards. 3. 9—(galingale.)

Scirpus. Glumes chaffy, scales imbricated every way: seed single, naked, surrounded with hairs or bristles. 3. 9—(club-rush.)

Eriophorum. Glume chaffy, imbricated every way: seed beset round with very long dense woolly hairs. 3. 9—(cotton-grass.)

Trichophorum. Calyx, scales imbricated every way: seed beset with capillary bristles, which at length project out, always 6 in number: spikelets ovatish. 3. 9—(light-hair.)

Fuirena. Scales of the calyx mucronate, every where imbricate in a spike: seed broad-involucred, chaff-like, often awned. 3. 9.

D. *Flowers grassy: valves of the calyx glume-like: corol 2-valved.*

Limnetis. Calyx 2-valved compressed, one of them keeled and longer than the other: corol 2-valved. 3. 9—(salt grass.)

Cenchrus. Involucre divided, echinate, 3 or 4-flowered: glumes 2-valved, 2-flowered: corol 2-valved, awnless: style 2-cleft, 4, 10—(hedge-hog-grass.)

* Juncus, Galium.

Order II. Digynia.

The proper Grasses.

A. *Flowers perfect.*

1st. *Glume 1-flowered.*

Oryzopsis. Calyx 2-valved, lax, obovate: corol teretish-ovate, leathery: valves 2, outer one awned at the apex: appendages 2, linear, chaffy. 4. 10—(mountain-rice.)

Panicum. Calyx 3-valved, the third valve dorsal and very minute: corol 2-valved: inflorescence various. 4. 10—(cockfoot grass, panic-grass.)

Digitaria. Calyx 2 or 3-valved, concave; the outer one very small or none, the innost one of the length of the corol: corol 2-valved, oblong-ovate, awnless: style very long; spikes digitate, linear: flowers in pairs. 4. 10—(finger-grass.)

Paspalum. Calyx 2-valved, valves roundish, of the form of the corol: flowers unilateral. 4. 10—(paspalon.)

Aristida. Calyx 2-valved: corol 1-valved, with 3 awns at the tip. 4. 10—(beard-grass.)

Stipa. Calyx 2-valved: corol 2-valved; valves involute truncate; awn terminal, very long, twisted at the base. 4. 10—(feather-grass.)

Alopecurus. Calyx 2-valved: corol 1-valved, simple at the tip; sometimes awned at the base. 4. 10—(foxtail-grass.)

Phalaris. Calyx 2-valved, valves keeled, nerved, equal in length, including the 2-valved pilose corol. 4. 10—(ribbon-grass, canary-grass.)

Hordeum. Calyx lateral, 2-valved, 1 or 2-flowered; florets in threes, the middle one sessile, lateral ones often barren: corol 2-valved, acute, outer valve awned. 4. 10—(barley.)

Milium. Calyx 2-valved, 1-flowered, ventricose: corol 2-valved, very short: stigmas penciliform. 4. 10—(millet.)

Agrostis. Calyx 2-valved, 1-flowered, valves

acute: corol 2-valved: stigmas longitudinally hispid or plumose, florets spreading. 4. 10—(redtop.)

Saccharum. Calyx involucred with long wool, 2-valved: corol 1 or 2-valved: stigmas 1 to 3. 4. 10—(sugar-cane.) Exotic.

Muhlenbergia. Calyx 1 or 2-valved, very minute: corol 2-valved, base hairy, outer valve awned at the tip: seed 1, oblong acuminate: flowers panicled. 4. 10—(dropseed grass.)

Leersia. Calyx 0: corol 2-valved, closed; valves compressed, boatform, awnless. 4. 10. —(cut-grass.)

Trichodium. Calyx 2-valved, valves nearly equal, acute; keel with small spines: corol 1-valved, awnless, shorter than calyx: stigmas nearly sessile, sub-hispid. Panicled. 4. 10—(thin-grass.)

Phleum. Calyx indurated, 2-valved, sessile, linear, truncate, bicuspidate: corol inclosed. 4. 10—(timothy-grass.)

2d. *Glumes 2 or 3-flowered; panicled.*

Aira. Calyx glossy, 2-valved, 2-flowered: corol 2-valved, awnless, or awned at the base. 4. 10—(hair-grass.)

3d. *Glumes 2-flowered or more; close-spiked.*

Elymus. General calyx involucre-like, generally 4-leaved, 2-spiked or with spikelets in pairs; partial calyx lateral, 2-valved, many-flowered. 4. 10—(lime-grass, wild rye.)

Melica. Calyx 2-valved, coloured, obtuse: corol 2-valved, ventricose, with the rudiment of a third among the flowers. 4. 10—(melic-grass.)

Eleusine. Calyx awnless, many-flowered: inflorescence an unilateral digitate spike: corol 2-valved, awnless. 4. 10—(dog-tail-grass.)

Secale. Calyx 2-valved, 2 or many-flowered, opposite, solitary: glumes linear-lanceolate, smooth or channelled both sides. 4. 10—(rye.) Exotic.

Triticum. Calyx 2-valved, about 3-flowered,

alternate ; florets obtusish and pointed : glumes beardless or interruptedly bearded : spikelets shortish. 4. 10—(wheat.)

Lolium. Calyx 1-leafed, permanent, many-flowered : florets in a 2-rowed simple spike. 4. 10—(darnel-grass.)

Atheropogon. Calyx 1-valved, 2-flowered : corol 2-valved, awned. 4. 10—(hairy-beard.)

4th. *Glumes many-flowered ; in panicles.*

Uniola. Spikelets flat, 2-edged, ovate : calyx many-glumed : corol 2-valved, awnless, inner one smallest : stamens 1 to 3 : appendages 2, somewhat 2-horned. 4. 10—(sea-rush-grass.)

Briza. Calyx 2-valved, many-flowered : spikelets of the panicle 2-ranked : valvelets inflated, heart-form, obtuse ; inner one minute. 4. 10—(quake-grass.)

Sorghum. Polygamous. Florets in pairs ; one perfect and sessile, the other staminate or neutral and pedicilled. 4. 10—(broom-corn.) Exotic.

Dactylis. Calyx 2-valved, one valve smaller : corol 2-valved, awnless, compressed, carinate : style long : panicles strait ; spikelets imbricate with lateral florets. 4. 10—(orchard-grass.)

Poa. Calyx 2-valved, many-flowered : corol ovate ; valves 2-coloured, acutish, scarious at their margins : spikelets of the panicle ovate, awnless. 4. 10—(meadow-grass, blue-grass.)

Festuca. Calyx 2-valved, many-flowered ; spikelets oblong, teretish, or diverging ; awnless or furnished with a terminal awn. 4. 10—(fescue-grass.)

Bromus. Calyx 2-valved ; spikelets oblong, terete-2-ranked ; valves awned below the tip. 4. 10—(chess, broom-grass.)

Avena. Calyx 2-valved, many-flowered ; valves with a twisted awn on the back : glumes membranaceous and somewhat follicle-like. 4. 10—(oats.)

ARUNDO. Calyx 2-valved, one or many-flowered, glabrous: florets heaped together: corol surrounded with wool. 4. 10—(reed-grass.)

B. *Flowers polygamous.*

1st. *Glume 1-flowered.*

ANDROPOGON. Calyx, glume 2-valved: corol 3-valved: flowers in pairs; 1 sessile perfect; the other peduncled, staminate, awnless—rarely neutral. 4. 10—(beardgrass.)

2d. *Glume 2-flowered, or more. Panicled.*

HOLCUS. Calyx, glume 2-valved, opake, nervous: corol smaller than calyx, 2-valved, the outer one awned under the tip: nectary linear 2-parted: stigma subsessile. 4. 10—(soft-grass.)

* Alsine.

ORDER III. TRIGYNIA.

A. *Corol 5-petalled.*

HOLOSTEUM. Calyx 5-leaved: capsule 1-celled, nearly cylindric, bursting at the top. 22. 82—(succulent chickweed.)

B. *Corol 3-petalled.*

LECHEA. Calyx 3-leaved: capsule 3-celled, 3-valved, with 3 inner valvelets: seed 1. 22. 82—(pinweed.)

C. *Corol none.*

MOLLUGO. Calyx 5-leaved, inferior: capsule 3-celled, 3-valved, many-seeded. 22. 82—(carpet-weed.)

QUERIA. Calyx 5-leaved, inferior: capsule 1-celled: seed 1. 22. 82—(fork chickweed.)

PROSERPINACA. Calyx 3-parted superior: nut 3-sided, 3-celled, crowned by the calyx. 15. 22—(mermaid-weed.)

* Zanthoxylon, Alsine.

CLASS IV. TETRANDRIA.

Order I. Monogynia.

A. *Flowers 1-petalled, inferior, calyx 4-cleft.*

Callicarpa. Corol 4-cleft, tubular: berry 4-seeded. 43. 38—(Bermuda mulberry.)

Plantago. Corol 4-cleft reflexed: capsule 2-celled, opening transversely: stamens very long. 54. 31—(plantain, ribwort.)

Lycium. Corol tubular, having the throat closed by the beards of the filaments: berry 2-celled, many-seeded. 28. 41—(box thorn.)

Frasera. Corol 4-cleft, spreading; segments with bearded glands in the middle: capsule compressed, sub-margined, 2-valved: seeds few, imbricated—(pyramid flower.)

Bartonia. Corol 4-cleft, bell-form, permanent: capsule 1-celled, 2-valved, many-seeded—(screw-stem.)

Houstonia. Corol salver-form: capsule 2-celled, 2-valved, 2-seeded. 47. 57—(Venus' pride.)

B. *Flowers 1-petalled, superior.*

Mitchella. Calyx 4-toothed: corols 2 on each germ, tubular: berry double, 4-seeded: stigmas 4. 48. 57—(partridge-berry, checkerberry.)

Sanguisorba. Calyx inferior, 2-leaved: corol superior, 4 parted: capsule between the calyx and corol. 54. 92—(burnet saxifrage.)

Cephalanthus. Inflorescence in a head: general calyx none: proper calyx superior: corol funnel-form: receptacle globular, hairy: capsules 2 to 4-partible: seed solitary, oblong. 48. 57—(button-bush.)

Linnaea. Calyx double: that of the fruit 2-leaved, inferior; that of the flower 5-parted: corol bell-form: stamens somewhat didynamous; berry 3-celled, dry. 48. 58—(twin-flower.)

Rubia. Calyx 4-toothed: corol 4 or 5-cleft, bell-form: berries 2, one-seeded, (stamens 4-5; leaves stellate.) 47. 57—(madder.) Exotic.

Scabiosa. Common calyx many-leaved; proper one double, superior: receptacle chaffy or naked. (Flowers aggregate.) 47. 57—(scabious.) Exotic.

Galium. Calyx 4-toothed: corol flat: fruit dry: seeds 2, roundish: (leaves stellate.) 47. 57—(bedstraw.)

Dipsacus. Common calyx many-leaved; proper calyx 1-leafed superior: receptacle chaffy: seed 1, crowned: flowers aggregate. 48. 56—(teasel.)

C. *Flowers 4-petalled, inferior.*

Ammannia. Calyx tubular, plaited, 8-toothed: petals 4, or none, on the calyx: capsule 4-celled—(sometimes 2-celled and 8-stamened.) 17. 91—(tooth-cup.)

D. *Flowers 4-petalled, superior.*

Cornus. Calyx 4-toothed: drupe with a 2-celled nut. Some species have a 4-leaved involucre. 45. 58—(dogwood, false box.)

Ludwigia. Calyx 4-parted, the divisions long, permanent: capsule 4-cornered, 4-celled, perforated at the top, many-seeded—(petals sometimes wanting.) 17. 88—(seed-box.)

Oldenlandia. Corol 4-petalled: calyx 4-parted, superior: capsule 2-celled, many-seeded: columella free. (Styles 1 or 2.)—(round head.)

E. *Flowers not complete.*

Pothos. General calyx a spathe: perianth 0: spadix simple, covered with flowers: petals 4, wedge-form: berries globose, 2-seeded, inclosed in a spongy receptacle. 2. 7—(skunk-cabbage.)

Isnardia. Calyx bell-form, 4-parted superior: corol 0: capsule 4-celled, 4-cornered, many-seeded, surrounded by the calyx. 17. 91—(water-purslane.)

Rivina. Corol 4-petalled, inferior, permanent: calyx o: berry 1-seeded: seed lenticular, rough, (stamens 4, 8 or 12.) 12. 29—(rough seed.)
* Convallaria, Cardamine, Prinos.

Order II. Digynia.

Hamamelis. Involucre 3-leaved: perianth 4-leaved: petals 4, very long, linear: nut 2-celled, 2-horned. 54. 78—(witch hazel.) Flowers in autumn, and perfects its seed the following spring.
* Cuscuta, Swertia, Oldenlandia, Gentiana.

Order IV. Tetragynia.

Ilex. Calyx 5-toothed; corol 4-parted, wheel-form; style o; berry 4-celled, cells 1-seeded. 43. 95—(holly.)

Ruppia. Calyx o: corol o: seeds 4, pedicelled.

Sagina. Calyx 4-leaved; petals 4; capsule 4-celled, 4-valved, many seeded. 22. 82—(pearlwort.)

Tillaea. Calyx 3 or 4-parted: petals 3 or 4, equal: capsules 3 or 4, two or many-seeded. 15. 6—(pigmy-weed.)

Potamogeton. Calyx o: petals 4: style o: seeds 4. 15. 6—(pond-weed.)

CLASS V. PENTANDRIA.

Order I. Monogynia.

A. *Flowers* 1-*petalled, inferior; having* 4 *naked seeds.* Rough-leaved plants.

Pulmonaria. Calyx prismatic 5-angled: corol funnel-form, with an open throat: seeds roundish, obtuse. 41. 42—(lung-wort.)

Cerinthe. Limb of the corol tubular, ventricose, throat pervious: nuts two, 2-celled. 41. 42—(honey-wort.) Exotic.

Lithospermum. Calyx 5-parted: corol funnel-form, with an open throat: seeds ovate, pointed, stoney: stamens and pistils inclosed. 41. 42—(stone-seed or gromwell.)

Cynoglossum. Calyx 5-parted: corol funnel-form, vaulted, throat closed: seeds depressed, affixed laterally to the style within. 41. 42—(hound-tongue.)

Batschia. Calyx about 5-cleft: corol salver-form, with a strait tube longer than the calyx; having a bearded ring within at the base; throat naked, with rounded divisions: seeds hard and shining. 41. 42—(false bugloss.)

Anchusa. Calyx 5-parted: corol funnel-form, vaulted, throat closed: seeds marked at the base, and their surface generally veined. 41. 42.—(bugloss.) Exotic.

Myosotis. Calyx half-5-cleft: corol salver-form, curved, 5-cleft, vaulted, throat closed, the lobes slightly emarginate: seeds smooth or echinate. 41. 42—(scorpion-grass.)

Heliotropium. Calyx tubular, 5-toothed: corol salver-form, 5-cleft, with teeth or folds between the divisions; throat open. (Spikes recurved, involute.) 41. 42—(turnsole.)

Onosmodium. Calyx deeply 5-parted: corol oblong, somewhat bell-form, with the acute divisions converging, the upper part of the corol being ventricose and half-5-cleft, throat open: anthers sessile enclosed: styles exsert. (Spikes revolute.) 41. 42—(false gromwell.)

Borago. Corol wheel-form, the throat closed with rays. 41. 42—(borage.) Exotic.

Symphitum. Limb, or upper part of the corol, tubular-swelling, the throat closed with subulate rays. 41. 42—(comfrey.)

Echium. Corol most irregular, throat naked, large: stigma cleft. 41. 42—(viper's bugloss.)

B. *Flowers 1-petalled, inferior; seeds covered with a 1-celled capsule: calyx 5-parted or 5-toothed.*

Hydrophyllum. Corol bell-form, 5-cleft, with 5 longitudinal honey-bearing groves inside: capsule globose, 2-valved: stigma 2-cleft. 41. 42—(water-leaf, burr-flower.)

Nolana. Calyx 5-cleft, divisions broad: corol bell-form: stigma capitate, somewhat 5-angled: seeds 5: receptacle fleshy, thickening. 41. 42. Exotic.

Anagallis. Corol wheel-form, deeply 5-parted: capsule opening transversely: stamens hairy. 20. 34—(scarlet pimpernel.)

Lysimachia. Corol wheel-form: capsule globular, 10-valved, mucronate: stigma obtuse.—(In some species the filaments are united at the base.) 20. 34—(loose-strife.)

Dodecatheon. Corol wheel-form, reflexed capsule oblong: stamens on the inside of the tube: stigma obtuse. 20. 34—(false-cowslip.)

Menyanthes. Corol hairy: capsule ovate: stigma 2-cleft. 21. 34—(buck bean.)

Villarsia. Capsule 1-celled, valveless: corol wheel-form; divisions bearded at the base, margin inflexed. 21. 34—(spur-stem, heart water-shield.)

Primula. Umbellets involucred: tube of corol cylindric, throat open, divisions of corol emarginate: capsule 1-celled with a 10-cleft mouth: stigma globular. 21. 34—(primrose, cowslip.)

Hottonia. Corol salver-form: stamens on the tube of the corol: stigma globular. 21. 34—(feather-leaf.)

——— *Differ from the above in having 2-celled capsules.*

Spigelia. Corol funnel-form: twin capsules 4-valved, 2-celled: stigma simple: seeds many. 47. 46—(pink-root.)

Convolvulus. Corol funnel-form, plaited: stigma 2-cleft or double: cells of the capsule 2 or 3; each 2 seeded. 29. 43—(bind-weed.)

Datura. Calyx tubular, angled, caducous: corol funnel-form, plaited; capsule 4-valved, 4-celled, smooth or thorny. 28. 41—(thorn-apple.)

Nicotiana. Corol funnel-form, limb plaited: stigma notched: stamens inclined: capsules 2-celled, 2-valved. 28. 41—(tobacco.) Exotic.

Verbascum. Corol wheel-form, somewhat irregular: stamens declined, hairy: capsules 2-celled, 2-valved; valves inflexed: many seeded. 28. 41—(mullein.)

Chironia. Calyx somewhat bell-form: corol salver-form or wheel-form: anthers becoming spiral; filaments on the tube of the corol: pistil declined: pericarp 4-celled. 20. 40—(centaury.)

Atropa. Corol bell-form: stamens distant: berry globular, 2-celled, sitting on the calyx. 28. 41—(deadly nightshade.) Exotic.

Phacelia. Corol somewhat bell-form, 5-cleft: stamens exsert: capsule 2-celled, 2-valved, 4-seeded. 41. 42.

Hyoscyamus. Corol funnel-form, obtuse, irregular: stamens inclined: capsule 2-celled, covered with a lid. 28. 41—(henbane.) Exotic.

——— *Differ from the above in having 3-celled capsules.*

Diapensia. Calyx 5-leaved, imbricated with leafets: corol salver-form; limb flat, 5-cleft: stamens crowning the tube of the corol: capsule 3-valved, many seeded. 21. 43.

Phlox. Calyx prismatic: corol salver-form; with a tube somewhat curved: filaments unequal in length: stigmas 3-cleft: capsule 3-celled, 1-seeded. 20. 44—(lichnedia.)

Polemonium. Calyx-half 5-cleft: corol wheel-form, 5-parted: stamens on 5 valves closing the bottom of the tube: stigma 3-cleft. 29. 44—(Greek-valerian.)

Ipomoea. Corol funnel or bell-form, with 5 plaits: stigma globe-headed, papillose: capsule 2 or 3-celled, many-seeded. 29. 43—(cypress vine, morning glory.)

Pyxidanthera. Divisions of calyx lying over each other, chaffy-membranaceous: corol bellform, 5-parted: filaments lamellar: cells of anthers opening transversely: stigmas 3; style thick. 21. 43—(box-flower.)

——— *Differ from the above in having 5-celled capsules.*

Azalea. Corol tubular, half-5-cleft, somewhat oblique: stamens on the receptacle; stigma obtuse, usually ending with 5 short papillae. 18. 50—(wild honey-suckle.)

Vinca. Corol salver-form, twisted, border 5-cleft, with oblique divisions; throat 5-angled: seed naked, oblong: follicles 2, erect, terete, narrow. 30. 47—(periwinkle.)

——— *Differ from the above in having 2-celled berries.*

Solanum. Calyx permanent: corol bell or wheel-form, 5-lobed, plaited: anthers thickened, with two pores at the top: berry containing many seeds. 28. 41—(potatoe, nightshade, bitter-sweet.)

Physalis. Corol bell or wheel-form: anthers converging: berries contained in an inflatted calyx: seeds numerous. 28. 41—(winter cherry.)

Capsicum. Corol wheel-form: berry juiceless: anthers converging: calyx angular. 28. 41—(red pepper.) Exotic.

C. *Flowers 1-petalled, half inferior: calyx 5-cleft.*

Samolus. Corol salver-form, 5-lobed, with intermediate scales fencing the stamens between them; capsule 1-celled, 5-toothed; many seeded. 21. 34—(brookweed.)

D. *Flowers 1-petalled superior: calyx 5-cleft.—(stems woody.)*

Lonicera. Corol tubular, 5-cleft, unequal: berry 2 or 4-celled: seeds many. 48. 58—(trumpet honey-suckle.)

Xylosteum. Corol tubular, border 5-parted, nearly equal: berries in pairs, whose bases are connate, or single coadunate; 2-celled. 48. 58—(fly honey-suckle, twin-berry.)

Diervilla. Calyx oblong: corol twice as long as calyx, funnel-form, border 5-cleft, spreading: capsule oblong, 4-celled, many seeded. 48. 58—(bush honey-suckle.)

(Stems not woody.)

Campanula. Corol bell-form, closed at the bottom by valves bearing the stamens: stigma 3 to 5-cleft: capsule 3 to 5-celled, opening by lateral pores. 29. 52—(bell-flower.)

Lobelia. Corol irregular, often irregularly slitted: anthers cohering and somewhat curved: stigma simple: capsule 2 or 3-celled: 29. 52—(cardinal flower, wild tobacco.)

Mirabilis. Corol funnel-form, coarctate below: calyx inferior: germ between the calyx and corol: stigma globular. 54. 32—(four o'-clock.) Exotic.

Triosteum. Calyx of the length of the corol: corol tubular, 5-lobed: berry 3-celled, 3-seeded. 48. 53—(feverwort, horse ginseng.)

E. *Flowers 5-petalled, inferior.*

(Stems woody.)

Rhamnus. Calyx cup-form, 4 or 5-cleft; corol consists of scales fencing in the stamens and inserted on the calyx (sometimes wanting); stigma either simple, 2 or 4-cleft; berry 3 or 4-seeded; (sometimes polygamous or dioecious.) 43. 95—(buck-thorn, dwarf alder.)

Ceanothus. Petals bay-like, vaulted, standing in the cup-form calyx; berry, or capsule dry, 3-grained. 43. 95—(New-Jersey tea.)

Celastrus. Calyx flat: corol spreading: capsule 3-angled, 3-celled, berry-like: stigma 3-cleft: seeds calyptred. 43. 95—(staff tree, false bittersweet.)

Euonymus. Calyx 5-parted, flat: corol flat: capsule 5-angled, 5-celled, 5-valved, coloured: seeds calyptred. 43. 95—(spindle tree)

Vitis. Calyx 5-toothed: petals cohering at

the tip hood-like, withering : berry 5-seeded, globular. (Often dioecious.) 46. 72—(grape vine.)

Ampelopsis. Calyx 5-toothed : petals reflexed, spreading : berry 5-seeded, globular. 46. 72 ---(false grape.)

Itea. Calyx 5-cleft, bearing the 4 long linear reflexed petals : stigma capitate, 2-lobed : capsule 2-valved ; the valves bearing the seeds and having inflexed margins. 18. 50.

(Stems not woody.)

Gomphrena. Calyx 5-leaved coloured ; exterior one 3-leaved ; two leaflets converging, keeled : petals 5, villose (or rather no corol) nectary cylindric, 5-toothed : capsule opening transversely, 1-seeded : style semibifid—(bachelor's buttons.) Exotic.

Impatiens. Calyx 2-leaved : corol irregular, spurred : anthers cohering : capsule elastic, 5-valved. 24. 73—(jewel weed, touch-me-not, or balsam weed.)

Celosia. Calyx 3-leaved : corol 5-petalled : stamens joined at the base by a plaited nectary : capsule horizontally dehiscent : style 2 or 3-cleft. Leaves always opposite)—(cockscomb.) Exotic.

Viola. Calyx 5-leaved : corol irregular, with a horn behind (sometimes the horn is wanting :) anthers attached by a membranous tip : capsule 1-celled, 3-valved 29. 80—(violet.)

Claytonia. Calyx 2-valved : stigma 3-cleft : capsule 1-celled, 3-valved, 3-seeded 13. 86—(spring beauty.)

F. *Flowers 5-petalled, superior.*

Ribes. Corol and stamens inserted on the calyx : style 2-cleft : berry many-seeded. 36. 85 (currant, gooseberry.)

Hedera. Petals oblong : berry 5-seded, surrounded by the calyx : style simple. 46. 58—(European ivy.) Exotic.

G. *Corols wanting.*

Illecebrum. Calyx 5-leaved, divisions arch-

ed at the tips : corol o ; stigma simple or 2-cleft : capsule 5-valved, 1-seeded.

Glaux. Calyx inferior, 5-lobed, coloured : capsule 1-celled, 5-valved, 5-seeded, surrounded by the calyx. 17. 91—(sea-milk wort.)

Thesium. Calyx superior, half 5-cleft, bearing the stamens : nut 1-seeded, covered with the permanent calyx. 31. 24—(false toad-flax.)

Order II. Digynia.

A. *Follicles* 2 : *corol* 1-*petalled, with a five-parted border.*

Amsonia. Corol funnel-form, throat closed : follicles erect : seeds terete, naked, obliquely truncate. (Stigma with a marginal ring. Leaves always alternate.)

Nerium. Calyx 5-parted, small, permanent : corol funnel-form ; throat with a lacerated crown : follicles converging, long acuminate—(oleander.) Exotic.

Periploca. Nectary pitcher-form, putting out 5 threads, surrounding the stamens : corol wheel-form : stigma capitate, 5-cornered. 30. 47—(follicle vine.)

Apocynum. Corol bell-form : stamens alternating with 5 filamentous pointed nectaries : stigma broad almost sessile : follicles long-linear. 30. 47---dog-bane, Indian hemp.)

B. *Capsules* 1 *or* 2-*celled,* 2-*valved : corol* 1-*petalled : calyx* 5-*cleft.*

Swertia. Corol wheel-form with nectariferous pores at the base of the divisions : capsule 1-celled. 20. 46---(false gentian.)

Gentiana. Corol with a tubular base, without pores : capsule 1-celled, oblong : columellas 2, longitudinal. 20. 46---(gentian.)

Cuscuta. Corol 5-cleft : capsule 2-celled, dividing transversely at the base : seeds binate. 29. 43—(dodder.)

C. *Corol 5-petalled.*

HEUCHERA. Calyx inferior: corol on the calyx: capsule 2-beaked, 2-celled. 13. 84—(allum root.)

PANAX. Polygamous. Umbelled. Involucre many leaved: calyx 5-toothed, superior: berry heart-form, 2-seeded: calyx, in the staminate flowers, entire. 46. 59—(ginseng.)

D. *Corol* 0.

(Stem herbaceous, except *Atriplex halimus.*)

SALSOLA. Calyx 5-leaved with a capsular base: capsule 1-celled, with a spiral seed. 12. 29—(saltwort.)

CHENOPODIUM. Calyx 5-leaved, 5-angled, inferior: seed 1, lens-like, invested by the calyx. 12. 29. (pigweed, oak of Jerusalem.)

BETA. Calyx 5-leaved: seed kidney-form within the fleshy substance of the base of the calyx. 12. 29—(beet.) Exotic.

ATRIPLEX. Calyx 5-leaved, inferior; style 2-parted: seed 1, depressed. Pistillate flowers are intermixed, in which the calyx is 2-leaved. 12. 29—(orach.)

(*Stems woody.*)

ULMUS. Calyx bell-form withering, border 5-cleft: seed 1, enclosed in a flat membranaceous samara. (Stamens vary from 4 to 8.) 53. 99—(elm.)

CELTIS. Polygamous. Calyx 5-parted: styles thickish, spreading: drupe 1-seeded: staminate flowers beneath the perfect ones, with 6-parted calyxes: stamens 6. 53. 99—(nettle-tree.)

E. *Plants* UMBELLIFEROUS. *Flowers 5-petalled, 2-seeded.*

——— *With general and partial involucres.*

ERYNGIUM Involucres many leaved: flowers in heads, all fertile: receptacle chaffy: fruit crowned, 2-partible. 45. 60—(sea-holly.)

Coriandrum. Corols radiate, with petals inflected, emarginate: general involucre 1-leafed; partial one halved: fruit globular. 45. 60—(coriander.) Exotic.

Hydrocotyle. Umbels simple and very small; flowers all fertile: involucre 4-leaved: petals entire: fruit half-orbicular, compressed. 45. 60—(water-navelwort.)

Sanicula. Flowers of the disk abortive: umbels crowded into head-like heaps: seeds prickly. 45. 60—(sanicle, blackroot.)

Heracleum. General involucre caducous: flowers unequal: petals inflexed, emarginate: fruit oval, compressed, striate, margined, emarginate. 45. 60—(cow-parsely.)

Caucalis. Corols mostly radiate with the disk flores staminate: petals inflexed, emarginate: fruit hispid with bristles: involucre many-leaved, entire or none. 45. 60—(base-parsley.) Southern states.

Daucus. Involucres pinnatifid: flowers somewhat radiate, those of the disk abortive: fruit hispid with hairs. (Umbels funnel-form.) 45. 60—(carrot.) Exotic.

Angelica. Petals incurved: corols equal: calyx 5-toothed: style reflexed: fruit roundish, solid, 6-winged both sides. 45. 60— angelica.)

Sison. Petals lanceolate, inflected: umbels with few pedunckes: fruit ovate, striate: involucres about 4-leaved. 45. 60—(honewort.)

Ferula. Petals heart-form: fruit oval, flat compressed, with 3 lines on both sides: flowers uniform, all fertile: general involucre caducous, partial ones many leaved. (Generally tall.) 45. 60—(giant-fennel.)

Ligusticum. Involucre membranaceous: calyx 5-toothed: petals equal, involute, entire: fruit 3 or 5-ribbed each side, oblong. 45. 60—(lovage, smellage.) Exotic.

Ammi. Involucres many leaved: corols radiate,

all perfect: fruit smooth or striate: umbels lax, 45. 60—(bishop-weed.)

Sium. Involucres many-leaved: petals heart-form: fruit somewhat ovate, striate, compressed. 45. 60—(water parsnip.)

Selinum. Involucre reflexed: perianth entire: petals heart-form, equal: fruit flat-compressed, striated in the middle, oval-oblong. 45. 60—(milk-parsley.)

Conium. Partial involucres halved, somewhat 3-leaved: fruit somewhat globular, marked with 5 lines, crenate at both ends. 45. 60—(poison hemlock.)

—— *With a partial, and without a general, involucre.*

Chaerophyllum. Involucre concave, reflexed, 5 to 8-leaved: petals inflexed, heart-form: fruit oblong, smooth or striated, very glabrous. 45. 60—(poison cicily.)

Myrrhis. Umbel compound: involucres erect: fruit oblong, deeply furrowed, angles sub-membranaceous. 45. 60—(sweet cicily.)

Cicuta. Involucre 3 to 5-leaved: fruit sub-ovate, grooved. 45. 60—(cowbane.

Imperatoria. Fruit roundish, compressed, gibbous in the middle, bound at the margin with a wing: petals inflex-emarginate. 45. 60—(master-wort.)

—— *Without a partial involucre, and rarely having a general one.*

Smyrnium. Fruit somewhat compressed, gibbous, striate: petals acuminate, keeled.—(Fruit becoming black.) 45. 60—(alexanders.)

Pastinaca. Fruit oval, flat-compressed: petals involate, entire. 45. 60—(parsnip.)

Anethum. Fruit ovatish, compressed, striate: petals involute, entire. 45. 60—(fennel, dill.) Exotic.

Apium. Fruit ovate, striate: involucre 1-leafed: petals equal. 45 60—(celery, parsley). Exotic.

Carum. Fruit ovate-oblong, striate: involucres about 1-leafed: petals keel-form, inflex-emarginate 45. 60—(caraway.) Exotic.

* Polygonum, Scleranthus.

Asclepais and Cynanchum, are usually placed here; but they are carried to the 19th class on the authority of Dr. Smith.

Order III. Trigynia.

A. *Corols superior, 5-cleft.*

Viburnum. Calyx 5-parted: berry or drupe 1-seeded. 43. 58—(snowball, sheep-berry, high cranberry.)

Sambucus. Calyx 5-parted: berry 3-seeded. 43. 68—(elder.)

Tamarix. Calyx 5-parted: petals 5: capsule 1-celled, 3-valved: seed furnished with hairs. (tamarisk.) Exotic.

B. *Corols inferior, 5-petalled.*

Staphylea. Calyx 5-parted: capsules inflated, connate; nuts globular, having a cicatrice. 23. 95—(bladder nut.)

Rhus. Calyx 5-parted; berry 1-seeded. 43. 94—(sumach, poison ivy.)

Sarothra. Calyx 5-parted: capsule 1-celled, 3-valved, coloured. 20. 82—(pine-weed.)

Alsine. Calyx 5-leaved: petals equal: capsule 1-celled, 3-valved, many-seeded; having a free central columella. 22. 82—(chick-weed.)

* Euphorbia, Panax.

Order IV. Tetragynia.

Parnassia. Calyx 5-parted: corol 5-petalled: nectaries 5, with stamen-like divisions, globular tips: capsule 4-valved, 2-celled: seed membranaceous-margined. 14. 64—(parnassus-grass, false plantain.)

Order V. Pentagynia.

Aralia. Umbellets involucred: perianth 5-toothed, superior: petals 5: berry crowned, 5-celled; cells 1-seeded. 46. 59—(spikenard, wild sarsaparella.)

Linum Calyx 5-leaved: corol 5-petalled: capsule 5-valved, 10-celled: seeds solitary: filaments thickening at the base. 14. 73—(flax.)

Drosera Calyx 5-cleft: corol 5-petalled: capsule 1-celled, 3 to 5-valved at the top. seeds many. Sometimes 6-styled. (The leaves are always beset with glandular hairs resembling dew.) 14. 64—(sundew.)

Statice. Calyx 1-leaved, entire, plaited, scarious, inferior: corol 5-petalled: seed 1. 48. 33—(marsh-rosemary.)

* Spergula, Ceratium.

Order XIII. Polygynia.

Z anthorhiza. Calyx 0: petals 5: nectaries 5, pedicelled: capsules 1-seeded, about 5 in number. 26. 61—(yellow-root.)

CLASS VI. HEXANDRIA.

Order I. Monogynia.

A. *Flower with a perianth and corol, without a spathe.*

Bromelia. Calyx 3-cleft, superior: petals 3, with nectariferous scales at the base: berry 3-celled. 10—(pine-apple.) Exotic.

Tradescantia. Calyx inferior, 3-leaved: corol 3-petalled: filaments with jointed heads: capsules 3-celled. 6. 13—(spiderwort.)

Berberris. Calyx inferior, 6-leaved: petals 6, with 2 glands at the claw of each: style 0: berry 1-celled, 2-seeded. (Stigma navelled: stamens spring up on being irritated.)—(barberry.)

Caulophyllum. Calyx inferior, 6-leaved: petals 6, opposite to the leaves of the calyx: drupe

1-seeded : anther 2-celled, gaping at the margin. 24. 78—(poppoose-root.)

Prinos. Calyx inferior, 6-cleft : corol wheel-form, 6-cleft ; berry 6-seeded. 43. 95—(winter-berry.)

Cleome. Calyx 4-leaved : petals 4, ascending : glands 3, one at each sinuate division of the calyx except the lowest : stamens from 6 to 20, or more : capsule silique-like, 1-celled, 2-valved. Tetradynamous. 25. 64—(false-mustard.)

Floerkea. Calyx 3-leaved, corol 3-petalled : style 2-cleft : capsule bladder-like, 2-grained. 15. 22—(false-mermaid.)

B. *Flowers with a spathe or glume without a perianth.*

Amaryllis. Corol superior, 6-petalled, unequal : filaments unequal in proportion or direction, declined, inserted in the throat of the tube. 9. 17—(atamask lily.)

Hypoxis. Glume-like spathe 2-valved : corol superior, 6-parted, permanent : capsule elongated, narrow at the base : seed roundish. 10. 17—(star-grass.)

Allium. Spathe many flowered : petals inferior, ovate, spreading, sessile. (Flowers in close umbels or heads.) 9. 16—(leek, garlic onion, cives.)

Galanthus. Petals 3, concave, superior : nectaries 3, small, emarginate : stigma simple. 6. 17—(snow-drop.) Exotic.

Narcissus. Petals 6, equal, superior : nectary bell-form, 1-leafed, including the stamens. 9. 17—(jonquil, daffodil.) Exotic.

Pontederia. Corol inferior, 6-cleft, 2-lipped : capsule fleshy, 3-celled, many seeded : 3-stamens commonly inserted on the tip, and three on the tube of the coral. 6. 17—(pickeril weed.)

C. *Flowers without spathe, perianth or glume.*

Agave. Corol erect, superior, tubular, or fun-

nelform ; filaments erect, longer than the corol : capsule triangular, many-seeded. 10.15—(agave.)

Aletris. Corol superior, funnel-form, wrinkled, somewhat 6-cleft ; with the stamens inserted on the base of its divisions : capsule 3-celled, many-seeded, half inferior when mature. 10. 16—(false aloe.)

Hemerocallis. Corol 6-parted, tubular-funnelform : stamens declined : stigma small, simple. 10. 17—(day-lily.) Exotic.

Dracaena. Corol inferior, 6-parted ; or 6-petalled cohering at the base : filaments somewhat thickened in the middle : berry with 3 one-seeded cells. 11. 12—(Dragoness-plant.)

Conostylus. Corol more than half inferior, 6-cleft, permanent, with branching hairs : anthers erect : style conic, 3-parted : stigma simple : capsule opening at top, 3-celled, many-seeded.

Erythronium. Corol liliaceous, inferior, 6-petalled ; petals reflexed, having 2 tubercle-form nectaries at the base of the three inner alternate petals. 11. 14—(dog-tooth violet, or adder-tongue.)

Asparagus. Corol superior, 6-parted, erect ; the three inner petals reflexed at the apex : berry 3-celled ; many-seeded. 11. 12—(asparagus.) Exotic.

Polyanthes. Corol funnel-form, incurved : filaments inserted in the throat : germ within the bottom of the corol. 10. 16—(tuberose.) Exotic.

Hyacinthus. Corol roundish or bell-form, equal, 6-cleft : 3 nectariferous pores at the top of the germ : stamens inserted in the middle of the corol : cells somewhat 2-seeded. 10. 16—(hyacinth.) Exotic.

Lilium. Corol inferior liliaceous 6-petalled ; petals with a longitudinal line from the middle to the base : capsule with the valves connected by hairs crossing as in a sieve. 10. 14—(lily.)

Tulipa. Corol 6-petalled, liliaceous : style none. 10. 14—(tulip.) Exotic.

Fritillaria. Corol 6-petalled, bell-form, with a nectariferous cavity above the claw of each: stamens of the length of the corol: seeds flat. 10. 14—(crown imperial.) Exotic.

Convallaria. Corol inferior 6-cleft: berry 3-celled, spotted before ripening. 11. 12—(solomon-seal.)

Uvularia. Corol inferior, 6-petalled, with a nectariferous hollow at the base of each petal: filaments very short. 11. 14—(bellwort.)

Orontium. Receptacle spadix-like, cylindric, covered with florets: spathe 0: corol 6-petalled, naked: style 0: follicle 1-seeded. 2. 7—(floating arum.)

Narthecium. Corol 6-petalled, inferior, spreading, permanent: filaments thread-form, hairy: capsule prismatic: seed appendaged at both ends. 10. 16—(false asphodel.)

Ornithogalum. Corol 6-petalled, erect, permanent, spreading above the middle: filaments dilated or subulate at the base: capsule roundish, angled, 3-celled: seed roundish, naked. 10. 16—(star of Bethlehem.) Exotic.

Asphodelus. Corol 6-parted, spreading: nectary covering the germ with 6-valves. 10. 14—(kings spear, or asphodel.) Exotic.

Acorus. Receptacle spadix-like, cylindric, covered with florets: calyx 6-parted: corol 0: capsule 3-celled 3-seeded. 2. 7—(sweet flag.)

D. *Flowers without corol.*

Juncus. Glume 2-valved: calyx 6-leaved, permanent: stigmas 3: capsules 1 or 3-celled, 3-valved, many-seeded. 5. 13—(rush-grass, bullrush.)

* Trientalis, Polygonum, Laurus, Corydalis.

Order II. Digynia.

Oryza. Calyx, glume 2-valved, 1-flowered: corol 2-valved, adhering to the seed. 4. 10—(rice.) Exotic.

* Ulmus.

ORDER III. TRIGYNIA.

MEDEOLA. Calyx o : corol deeply 6-parted, revolute : berry 3-seeded. 11. 12—(Indian cucumber.)

MELANTHIUM. Polygamous. Calyx o : corol wheel-form, 6-parted or 6-petalled, each part with 2 glands at the base : stamens from the lengthened claws of the petals : capsule ovatish, somewhat 3-cleft at the apex, 3-celled ; seeds membrane-winged, numerous. 10. 13—(black-flower.)

VERATRUM. Polygamous. Calyx o : corol 6-petalled, without glands : capsules 3, many-seeded. (The staminate flowers have the rudiment of a pistil. 10. 13—(itchweed, or swamp hellebore.)

HELONIAS. Calyx o : corol 6-petalled : styles distinct : capsules 3-celled, 3-horned, few-seeded. 10. 13—(helonias.)

XEROPHYLLUM. Corol wheel-form : filaments contiguous to the base : stigmas 3, revolute, sub-connate at the base : capsule subglobose, opening at the top into three fissures, 3-celled, each 2-seeded. 10. 13.

TOFIELDA. Calyx 3-cleft inferior : petals 6 : capsules 3, joined at the base, many seeded. 10. 16.

SCHEUCHZERIA. Calyx 6-parted inferior : corol o : anthers linear : stigmas sessile, lateral : capsules 3, inflated, 1 or 2-seeded. (Sometimes the calyx is taken for the corol.) 5. 13—(less flowering-rush.)

ZIGADENUS. Calyx 6-leaved, spreading, with 2 glands above the narrow base of each leaf : stamens inserted in contact with the germ : capsules membranaceous, 3-celled, many-seeded. (Sometimes the calyx is taken for the corol)—(zigadene.)

TRILLIUM. Calyx 3-leaved, inferior, spreading : corol 3-petalled : berry 3-celled, many-seeded. 11. 12—(wake-robin.)

Triglochin. Calyx 3-leaved, inferior ; corol 3-petalled, resembling the calyx : stigmas sometimes 6 : capsules dehiscent at the base. 5. 13—(arrow-grass.)

Rumex. Calyx 3-leaved : petals 3, converging ; stigma many-cleft : seed 1, naked, three-sided. 12. 28—(dock.) Vide Lapathum.

Order XIII. Polygynia.

Alisma. Calyx 3-leaved : petals 3 : capsules numerous, 1-seeded. 5. 13—(water-plantain.)

CLASS VII. HEPTANDRIA.

Order I. Monogynia.

Trientalis. Calyx 7-leaved : corol 7-parted, equal, flat : berry juiceless : number of stamens variable. 20. 34—(chick-wintergreen.)

Æsculus. Calyx inflated, 4 or 5-toothed : corol 4 or 5-petalled, inserted on the calyx, unequal, pubescent : capsule 3-celled : seeds large, chestnut-form. 23. 66—(horse-chestnut.) Southern states.

Order IV. Tetragynia.

Saururus. Calyx an ament with 1-flowered scales : corol o : germs 4 : berries 4, 1-seeded. 2. 6—(lizard-tail.)

* Polygonum orientale.

CLASS VIII. OCTANDRIA.

Order I. Monogynia.

A. *Flowers superior.*

Oxycoccus. Calyx superior 4-cleft : corol 4-parted, the divisions nearly linear, revolute : filaments converging, anthers tubular, 2-parted : berry many-seeded. 18. 51—(cranberry.)

Gaura. Calyx 4-cleft, tubular : corol 4-petalled, ascending towards the upper side ; nut 1-seeded. 17. 88—(Virginian loosestrife.)

Epilobium. Calyx 4-cleft: tubular: corol 4-petalled: capsule oblong and of great length: seeds feathered. 17. 88—(willow herb.)

Oenothera. Calyx 4-cleft, tubular: caducous, divisions deflected: petals 4, inserted on the calyx: stigma 4-cleft; capsule 4-celled, 4-valved: seeds not feathered. 17. 88—(scabish, or tree-primrose.)

B. *Flowers inferior.*

Rhexia.—Calyx pitcher-form, 4 or 5-cleft: petals 4, oblique, inserted on the calyx: anthers declined: capsule 4-celled, within the calyx, setose: seeds numerous, cochleate. 17. 90—(deer-grass.)

Acer. Polygamous. Calyx 5-cleft: corol 4 or 5-petalled: samaras 2, united at the base, 1-seeded. 23. 66—(maple.)

Jeffersonia. Calyx 5-leaved, coloured, caducous: corol 8-petalled: capsule obovate, sub-peduncled, 1-celled, dehiscent below: seeds many, oblong, arilled at the base—(twin-leaf.)

Menziesia. Calyx inferior monophyllus: corol monopetalous, ovate: filaments inserted on the receptacle: capsule 4-celled, the partitions from the inflexed margins of the valves: seeds many, oblong.

Erica. Calyx 4-leaved, permanent: corol 4-cleft, permanent: filaments inserted on the receptacle: anthers bifid: capsules membranaceous, 4 to 8-celled, the partitions from the margins of the valves: seeds many in each cell. 18. 51—(heath.) Exotic.

Dirca. Calyx o: corol tubular, limb obsolete, unequal; stamens longer than the tube of the corol: berry or drupe, 1-seeded. (The corol may be taken for a coloured calyx.) 31. 25—(leather-wood.)

Daphne. Calyx o: corol 4-cleft, withering, including the stamens: drupe 1-seeded. (mezereon.) Exotic.

Tropoeolum. Calyx 4 or 5-cleft, coloured, spurred: petals 4 or 5, unequal: nuts leathery, sulcate. 23. 73—(nasturtion.) Exotic.

Order II. Dyginia.

Chrysosplenium. Calyx 4 or 5-cleft, coloured: corol 0: capsule 2-beaked, 1-celled, many seeded. (The terminal flowers in the European specimens are decandrous.) 13. 86—(golden saxifrage, water-carpet.)

Order III. Trigynia.

Cardiospermum. Calyx 4-leaved; petals 4; nectary 4-leaved, unequal: capsules 3, connate, inflated. 23. 65—(heart-seed.)

Polygonum. Calyx inferior, 5-parted, coloured, corol 0: seed 1, angular, covered with the calyx.—(Stamens and pistils vary in number—The calyx in some species might be taken for a corol.) 12. 28—(knot-grass, water-pepper, buckwheat, hearts-ease.)

CLASS IX. ENNEANDRIA.

Order I. Monogynia.

Laurus. Calyx 4 to 6-parted: corol 0: nectaries 3, two-bristled glands, surrounding the germ: drupe 1-seeded. (Stamens vary from 3 to 14—often diœcious—The calyx may be taken for a corol.) 12. 27—(sassafras, spice-bush.)

Order III. Trigynia.

Rheum. Calyx none: corol 6-cleft, permanent: seed 1, 3-sided. 12. 28—(rhubarb.) Exotic.

CLASS X. DECANDRIA.

Order I. Monogynia.

A. *Flowers many-petalled, irregular.*

Podalyria. Calyx 5-cleft, somewhat 2-lipped: corol papilionaceous, wings of the length of the banner: legume inflated, smooth, many-seeded. 32. 93—(wild indigo.)

Cercis. Calyx 5-toothed, gibbous below: corol papilionaceous, banner under the wing short: legume oblong. 33. 93—(judas-tree.)

Cassia. Calyx 5-leaved: corol 5-petalled: anthers, 3 lower ones beaked: legume membranaceous. 33. 93—(cassia.)

Rhodora. Calyx 5-toothed, corol 3-petalled: stamens declined: capsule 5-celled. 18. 50—(rhodora.)

B. *Flowers 5-petalled, regular.*

Clethra. Calyx 5-parted, permanent: style permanent: stigma 3-cleft: capsule 3-celled, 3-valved, surrounded by the calyx. (Spiked.) 18. 51—(sweet pepper-bush.)

Pyrola. Calyx 5-parted: anthers with 2 pores: capsule 5-celled, dehiscent at the angles. 18. 51—(shin-leaf.)

Chimaphila. Calyx 5-parted: petals 5: stigma sessile, thick, orbiculate; germ immersed: anthers beaked, opening with a kind of 2-valved aperture: capsules 5-celled, dehiscent at the angles. 18. 51—(prince's pine, pipsissiwa.)

Ruta. Calyx 5-parted: petals concave: receptacle surrounded by 10 nectariferous dots: capsule lobed. (Petals sometimes 4, and stamens 8.) 26. 81—(rue.) Exotic.

Melia. Calyx 5-toothed; petals 5: nectary cylindric, toothed, bearing the anthers in the throat: drupe with a 4-celled nut.—(bead-tree.) Southern states.

Melastoma. Calyx 5-cleft, bell-form: petals

5. inserted on the calyx: anthers long, bowed: berry 3-celled, obvolute with the calyx. (Stamens vary from 8 to 13. Leaves elegantly veined.)

Dionaea. Calyx 5-leaved: stigma fringed: capsule 1-celled, gibbous: seeds numerous. (Petals sometimes 6.) 14. 73—(Venus' fly-trap.)

C. *Flowers* 1-*petalled.*

Andromeda. Calyx 5-parted, inferior: corol ovate or roundish, with a 5-cleft reflexed mouth: capsule 5-celled, with partitions contrary. (Stamens sometimes 8.) 18. 51—(white-bush, leather-leaf.)

Rhododendron. Calyx 5-parted: corol somewhat funnel-form and oblique: stamens declining: capsule 5-celled. 8. 50—(rosebay.)

Kalmia. Calyx 5-parted: corol wheel-salver-form, with 10 horns beneath and 10 cavities within: capsule 5-celled. 18. 50—(laurel.)

Vaccinium. Calyx 5-toothed or 5-parted: corol bell or pitcher-form, 5-cleft, the divisions reflected: filaments inserted on the germ with the corol: berry 4 or 5-celled, many seeded. (The foreign species are sometimes octandrous.) 18. 51—(whortleberry.)

Epigaea. Calyx double, outer 3-leaved, inner 5-parted: corol salver-form: capsule 5-celled, many-seeded. 18. 51—(trailing arbutus.)

Gualtheria. Calyx inferior, double, outer 2-leaved, inner 5-cleft: corol ovate: capsule 5-celled, invested with the inner, berried, calyx: nectary 10-pointed. 18. 51—(spicy winter-green.)

Arbutus. Calyx inferior, 5-parted: corol ovate, pellucid at the base: berry 5-celled. 18. 51—(bear-berry.)

Ledum. Calyx 5-cleft: corol flat, 5-parted: capsule 5-celled, dehiscent at the base. (Stamens sometimes 5, leaves downy.) 18. 50—(labrador-tea.)

Leiophyllum. Calyx 5-cleft: corol flat, 5-

parted : capsule 5-celled, dehiscent at the top (leaves always glabrous.) 10. 50—(sleek leaf.)

D. *Calyx none.*

Monotropa. Corol 10-petalled ; 5-outer with nectariferous hollows at the base : capsules 5-valved. (A fifth part of the carpogenation sometimes wanting)—(beech-drops, bird's nest.)

* Geranium, Rhexia, Portulacca, Lythrum.

Order II. Digynia.

Hydrangea. Calyx 5-toothed, superior : corol 5-petalled : capsule 2-celled, 2-beaked, dehiscent between the beaks. 13. 85—(hydrangea.) Vid. Hortensia.

Saxifraga. Calyx 5-parted : corol 5-petalled : capsule 1-celled, 2-beaked ; many-seeded. 13. 84—(saxifrage.)

Tiarella. Calyx 5-parted : corol inserted on the calyx ; 5-petalled, petals entire : capsule 1-celled, 2-valved, 1 valve larger. 13. 84—(mitre-wort.)

Mitella. Calyx 5-cleft : petals 5 on the calyx, pinnatifid : capsule 1-celled, 2-valved, valves equal. 13. 84—(false sanicle, currant leaf.)

Dianthus. Calyx inferior, cylindrical, 1-leafed, with 4 to 8 scales at the base : petals 5 with claws : capsule cylindrical, 1-celled, dehiscent at the top. 22. 82—(pink, sweet-william.) Exotic.

Saponaria. Calyx inferior ; 1-leafed, tubular, without scales : petals 5, with claws : capsule oblong, 1-celled. 22. 82—(soap-wort.)

Scleranthus. Calyx inferior, 1-leafed : corol 0 : seeds 1 or 2, inclosed in the calyx : stamens inserted on the calyx. 22. 86—(knawell.)

* Chrysosplenium.

Order III. Trigynia.

Arenaria. Calyx inferior, spreading, 5 leaved : petals 5, entire : capsule 1-celled, many seeded. 22. 82—(sandwort.)

Stellaria. Calyx 5-leaved, inferior, spreading: petals 5, deeply cleft, mostly to the claw, spreading: capsule ovate, 1-celled, many-seeded, 6-toothed at the top. 22. 82—(starwort.)

Silene. Calyx 1-leafed, inferior, conic: petals 5, with claws appendaged at the mouth: capsule imperfectly 3-celled. 22. 82—(catch-fly.)

Cucubalus. Calyx inferior, 1-leafed, bell-form, inflated: petals 5 with claws, not appendaged at the mouth: capsule 3-celled. 22. 82—(bladder-campion.)

Hortensia. Flowers deformed: florets solitary: calyx 5-toothed, minute: corol 5-petalled. The gay flowers composing the cyme, have a large coloured, permanent petal-like 5-leaved calyx, and a minute caducous, 4 or 5-petalled corol; stamens 8, 10 or 11. 13. 85—(changeable hydrangea.) Exotic.

Order V. Pentagynia.

Sedum. Calyx inferior 5-cleft: petals 5: 5 nectariferous scales at the base of the germ: capsules 5. 13. 83—(live-forever, or orpine, stonecrop.) Exotic.

Penthorum. Calyx 5-10-cleft: petals 5 or 0: capsule 5-cuspidate, 5-celled. 13. 83—(Virginian orpine.)

Oxalis. Calyx 5-leaved inferior: petals 5, cohering by the claws: capsule 5-celled, 5-cornered, dehiscent at the corners: stamens, with 5 shorter: outer ones adhering at their bases. 14. 73—(wood sorrel.)

Spergula. Calyx 5-leaved inferior: petals 5, entire: capsule ovate, 1-celled, 5-valved. (Stamens often 5.) 22. 82—(spurry.) [Professor Ives considers all the American species of *spergula* and *sagina*, as a natural assemblage of plants, which ought to be united in one genus.]

Agrostemma. Calyx 1-leaved coriaceous: petals 5 with claws, border obtuse, entire: capsule 1-celled, many-seeded. 22. 82—(cockle.)

Cerastium. Calyx 5-leaved: petals 5, 2-cleft: capsule 1-celled, dehiscent at top, tooth-like. 22. 82—(mouse-ear chickweed.)

Lychnis. Calyx 1-leaved, oblong, smooth: petals 5, with claws: the limb somewhat 2-cleft: capsule 1 or 5-celled. 22. 82—(campion.) Exotic.

* Phytolacca.

Order X. Decagynia.

Phytolacca. Calyx 0: corol 5-petalled, calyx-like, inferior: berry 10-celled, 10-seeded. 54. 89—(pokeweed.)

CLASS XI. DODECANDRIA.

Order 1. Monogynia.

Asarum. Calyx 3 or 4-cleft, superior: corol 0: stigma 6-cleft: capsule coriaceous, crowned with the calyx. 11. 23—(wild ginger, or white snake-root.)

Hudsonia. Calyx tubular, 3-leaved, inferior: corol 5-petalled: stameus 10: capsule 1-celled, 3-valved, 3-seeded. 18. 51—(false-heath.)

Portulacca. Calyx 2-cleft, inferior: corol 5-petalled: capsule 1-celled, opening transversely: columella 5, filiform. 13. 86—(purslane.)

Lythrum. Calyx 6, 8, 10 or 12-toothed, inferior: petals 5 or 6 on the calyx: capsule 2-celled, many-seeded, covered. 17. 91—(milk-willowherb.)

Decumaria. Calyx 10-leaved, superior: corol 10-petalled: capsule about 8 or 10-celled, seeds numerous. 19. 89—(decamary.)

Talinum. Calyx inferior, 2 or 5-leaved: corol 5-petalled: capsule 1-celled, 3-valved, many seeded, seeds arillate: columella globose—(talinny.)

Cuphea. Calyx tubular-ventricose, 6 to 12-toothed, unequal: petals 6, mostly unequal, inserted on the calyx: capsule 1-celled, dehiscent

longitudinally with the calyx; follicle 3-sided: seeds lenticular.

Order II. Digynia.

Agrimonia. Calyx 5-toothed, invested with an outer one: petals 5: seeds 2, in the bottom of the calyx. 35. 92—(agrimony.)

* Delphinium.

Order III. Trigynia.

Euphorbia. Calyx 1-leaved, inflated: petals 4 or 5, standing on the calyx: capsule 3-grained. Flowers not umbelled. 38. 96—(spurge.)

Esula. Calyx 1-leaved, inflated: petals 4 or 5, standing on the calyx: capsules 3-seeded: flowers more or less umbelled. 38. 96—(caper, or spunge caper.) Exotic.

Reseda. Calyx 1-leafed, 4 to 6-parted: petals in many divisions: capsule 1-celled, dehiscent at the top: seed reniform (stamens 11 to 15: styles 3, 5, or none) 54. 64—(mignonette, dyer's weed.)

Order XIII. Polygynia.

Sempervivum. Calyx 9 to 12-parted: petals 8 to 12: capsules 12, many-seeded. (Stamens 16 or 20.) 15. 83—(house-leek.) Exotic.

CLASS XII. ICOSANDRIA.

Order I. Monogynia.

Philadelphus. Calyx 4-5-parted, superior: corol 5-petalled: style 4-cleft: capsule 4-5-celled, many-seeded; seed arilled. 19. 89—(false syringa, or mock-orange.)

Prunus. Calyx 5-cleft, inferior: corol 5-petalled: nut of the drupe smooth with prominent seams at the sutures. 36. 92—(cherry, plum.)

Armeniaca. Flowers sessile: calyx 5-cleft, inferior: petals 5: drupe fleshy, pubescent: nut with one margin acute and the other obtuse, furrowed both sides. 36. 92—(apricot.) Exotic.

Cactus. Calyx superior, 1-leafed, imbricate: petals numerous, in many series, the inner ones larger; stigma many-cleft: berry 1-celled, many-seeded, navelled. 13. 85—(prickly-pear.)

Myrtus. Calyx superior, 5-cleft: petals 5: berry 2 or 3-celled, many-seeded. 19. 89—(myrtle.) Exotic.

Punica. Calyx 5-cleft, superior: petals 5: pome or berry many-celled, many-seeded: receptacle parietal: seed berried. 36. 92—(pomegranite.) Exotic.

Amygdalus. Calyx 5-cleft, inferior: petals 5: drupe with a nut perforated with pores: flowers sessile. 36. 92—(peach.) Exotic.

* Lythrum.

From Order II. Dyginia, to Order V. Pentagynia.

Crataegus. Calyx superior, 5-cleft: petals 5: styles generally 3 or 5: berry mealy: seeds 2 to 5, bony. 36. 92—(thorn-bush.)

Sorbus. Calyx 5-cleft, superior: petals 5: styles 2 to 3: berry pomaceous: seeds 2 or 3 cartilaginous. 36. 92—(mountain ash.)

Aronia. Calyx 5-toothed: petals 5: fruit pomaceous: berry 5 or 10-celled; cells 1 or 2-seeded; seeds cartilaginous. 36. 92—(shad-flower, choake-berry.)

Mespilus. Calyx 5-cleft, superior, divisions generally foliaceous: corol 5-petalled: styles 2-5: drupe or berry with from 2 to 5 bony seeds. 36. 92—(medlar, or evergreen thorn.)

Order V. Pentagynia.

Pyrus. Calyx 5-cleft, superior: corol 5-petalled: pome 5-celled, many-seeded. 36. 93—(pear, apple, quince.)

Spiraea. Calyx 5-cleft, inferior, spreading: corol 5-petalled: capsule 2-valved within, many-seeded. 36. 92—(steeple bush, or hard-hack.)

MESEMBRYANTHEMUM. Calyx superior, 5-cleft: petals numerous, linear cohering at the base: capsule fleshy, many-seeded, turbinate. 13. 87—(ice-plant.) Exotic.

ORDER XIII. POLYGYNIA.

ROSA. Calyx urn-form, 5-cleft, fleshy, contracted towards the top: petals 5: seeds numerous, bristly, fixed to the sides of the calyx within. 35. 92—(rose.)

RUBUS. Calyx 5-cleft, corol 5-petalled: pistils numerous: berry composed of many juicy, 1-seeded, acines. 35. 92—(raspberry, blackberry.)

DALIBARDA. Calyx 5-cleft: corol 5-petalled: styles long, caducous, 5 to 8; berry composed of dry granulations. 35. 92—(dry strawberry.)

FRAGARIA. Calyx 10-cleft, 5 alternate divisions smaller: corol 5-petalled: receptacle ovate, berry-like caducous. 35. 92—(strawberry.)

POTENTILLA. Calyx 10-cleft, 5 alternate divisions smaller: corol 5-petalled: seeds awnless, roundish, rugose, fixed to a dry small receptacle. 35. 92—(five-finger, cinquefoil.)

GEUM. Calyx 10-cleft, 5 alternate divisions smaller: corol 5-petalled: seeds with a bent awn: receptacle columnar, villous. 35. 92—(avens, or herb bennet.)

COMARUM. Calyx 10-cleft, 5-alternate divisions smaller: petals 5, smaller than the calyx: receptacle ovate, spongy, permanent, villous. 35. 92—(marsh five-finger.)

CALYCANTHUS. Calyx 1-leafed, pitcher-shaped, scurfy, with coloured divisions: corol none: styles many, with glandular stigmas: seeds many, tailed, in the succulent calyx. 35. 92—(Carolina allspice.) Southern states.

CLASS XIII. POLYANDRIA.

ORDER I. MONOGYNIA.

CHELIDONIUM. Calyx 2-leaved: corol 4-pet-

alled : silique-like capsule 1-celled, linear : seeds crested, many. 27. 62—(celandine.)

Actaea. Calyx 4-leaved, caducous : corol 4-petalled : berry 1-celled : seeds half orbicular : 26. 61—(neck'ace weed, or bane-berry.)

Ascyrum. Calyx 4-leaved : 2 interior leafets cordate, large : corol 4-petalled : filaments disposed in 4 parcels : capsule oblong, 1-celled, 2 valved, included in the calyx leaves. 20. 68—(St. Andrew's cross, or St. Peter's wort.)

Cistus. Calyx 5-leaved, 2 of them smaller, corol 5-petalled : capsule 3-valved, opening at the top. 20. 80—(rock-rose, frost-plant.)

Sarracenia. Calyx double, 3 and 5-leaved : corol 5-petalled ; stigma peltate, covering the stamens : capsule 5-celled. 13. 22—(side-saddle flower.)

Thea. Calyx 5 or 6-leaved : corol 6 or 9 petalled : capsule 3-seeded—(tea.) Exotic.

Citrus. Calyx 5-cleft : petals 5, oblong : filaments dilated at the base, in several parcels : berry 9 to 18-celle — olyadelphous. 18. 70—(orange, lemon. (Exotic.)

Papaver. Calyx 2-leaved, caducous : corol 4-petalled : capsule 1-celled, dehiscent by pores under the permanent stigma. 27. 62—(poppy.)

Tilia. Calyx 5-parted : corol 5-petalled : capsule 5-celled, globular, coriaceous, dehiscent at the base, 1-seeded. 37. 79—(bass-wood.)

Sanguinaria. Calyx caducous. 2-leaved : corol about 8-petalled : capsule pod-like, ovate, 1-celled. 27. 62—(blood-root.)

Podophyllum. Calyx 3-leaved : corol about 9 petalled : berry 1-celled, crowned with the stigma. 27. 61—(wild mandrake.)

Capparis. Calyx 4-leaved, coriaceous, caducous : petals 4 : stamens long : berry coriaceous, pedunculed, 1-celled, globular or pod-like—(caper-bush.) Exotic.

Nymphaea. Calyx 4 to 7-leaved, larger than

the petals: corol many-petalled: stigma marked with radiated lines: berry many-celled, many-seeded. 13. 22—(pond-lily.)

NUPHAR. Calyx 5 or 6-leaved, petals many inserted on the receptacle with the stamens, nectariferous on their backs: stigma with radiate furrows, sessile: berry many-celled, many-seeded. 13. 22—(water-lily, or yellow pond-lily.)

ARGEMONE. Calyx 3-leaved: corol 6-petalled; capsule semi-valved. 27. 62—(horned poppy.)

FROM ORDER II. DIGYNIA, TO ORDER V. PENTAGYNIA.

FOTHERGILLA. Calyx truncate, entire: corol 0: filaments very long, clavate: germ bifid: capsule 2-celled, 2-horned: seed bony, solitary. 50. 99—(Fothergill's bush.)

PAEONIA. Calyx 5-leaved: petals 5: styles 0; stigmas 2 or 3: capsules pod-like, many-seeded. 26. 61—(peony.) Exotic.

HYPERICUM. Calyx 5-parted, divisions subovate: corol 5-petalled: filaments often united at the base in 3 or 5 sets: styles 2 to 5: capsules roundish with a number of cells equal to the number of styles. 20. 68—(St. John's wort.)

DELPHINIUM. Calyx 0: corol 5-petalled, unequal: nectary 2-cleft, horned behind: capsules 1 or 3, pod-like. 26. 61—(larkspur.) Exotic.

ACONITUM. Calyx 0: petals 5, upper one vaulted: nectaries 2, hooded, peduncled, recurved: capsules 3 or 5, pod-like. 26. 61—(monk's hood.) Exotic.

AQUILEGIA. Calyx 0: petals 5: nectaries 5, alternating with the petals and ending in horns beneath: capsules 5, distinct. 26. 61—(columbine.)

CIMICIFUGA. Calyx 4-leaved: petals (or nectaries) 4, pitcher-form, cartilaginous: capsules 4: seeds scaly. (Petals, pistils and calyx-leaves, variable.) 26. 62—(bug-bane, cohosh.)

Nigella. Calyx none ; petals 5 : nectaries 5, three-cleft, within the corol : capsules 5, convex. 26. 61—(fennel-flower.) Exotic.

* Reseda, Ascyrum, Caltha, Helleborus, Anemone, Hepatica.

Order XIII. Polygynia.

Hydrastis. Calyx 0 : corol 3-petalled : berry composed of 1-seeded acines. 26. 61—(orange-root.)

Clematis. Calyx 0 : petals, 3, 4, 5, or 6 ; seeds compressed : styles permanent, becoming long tails. (Some species are diœcious.) 26. 61—(virgin's bower.)

Thalictrum. Calyx 0 : petals 4 or 5 : filaments very long : seeds without tails, striate, terete. (Some species are diœcious.) 26. 61—(meadow rue.)

Helleborus. Calyx 0 : petals 5 or more : nectary 2-lipped, tubular : capsules 5 or 6, many-seeded, erectish, compressed. 26. 61—(hellebore.) Exotic.

Coptis. Calyx 0 : petals 5 or 6, caducous : nectaries 5 or 6, cowled : capsules 5 to 8, stiped, stellate, beaked, many-seeded. 26. 61—(gold-thread.)

Caltha. Calyx 0 : petals 5 to 9 : capsules numerous, many-seeded : nectaries 0 : (styles variable in number.) 26. 61—(American cowslip.)

Anemone. Calyx 0 : petals 5 to 9 : seeds numerous, naked. 26. 61—(wind-flower, rue anemone.)

Hydropeltis. Calyx 6-leaved somewhat converging : corol 0 : capsules oblong, somewhat fleshy, numerous, 2-celled, 1 or 2-seeded. 26. 61—(water-shield.)

Hepatica. Calyx 3-leaved : petals 6 to 9 : seeds naked. 26. 61—(liverleaf.)

Annona. Calyx 3-leaved : corol 6-petalled : stigma obtuse : berries 1-celled, many-seeded,

roundish with a scaly bark. 52. 76—(custard apple.)

Porcelia. Calyx 3-leaved: petals 6, inner ones largest: germs many: stigmas sessile, obtuse: berry (1 or many) cylindric or ovate, many-seeded: seed connected to an internal suture, arilled. 52. 76—(custard apple.) Southern states.

Liriodendron. Calyx 3-leaved: corol 6 or 9-petalled, liliaceous: seeds in a samara, imbricate on a strobile-like spike. 52. 75—(tulip tree, or white wood.)

Magnolia. Calyx 3-leaved: corol 6 to 9-petalled: capsules numerous, imbricate on a strobile-like spike, 2 valved: seeds berried, pendulous. 52. 75—(magnolia, or beaver tree.)

Nelumbium. Calyx 4 or 5-leaved: petals 5 or more: nuts half immersed in a truncate receptacle, and crowned with the permanent style. 26. 61—(nelumbo.)

Ranunculus. Calyx 5-leaved: petals 5, with claws and a nectariferous pore or scale on the inside of each: seeds numerous. 26. 61—(crowfoot.)

Trollius. Calyx 0: petals from 5 to 14: capsules many, ovate, many-seeded. 26. 61—globe-flower.)

Atragene. Calyx 2 or 4-leaved, sometimes involucred: petals numerous, outer ones largest: seeds tailed. 26. 61—(atragene.)

Adonis. Calyx 4-5-leaved: petals 5 or more, without nectariferous pores: seeds awnless. 26. 61—(pheasant's eye.) Exotic.

CLASS XIV. DIDYNAMIA.

Order I. Gymnospermia.

A. Calyxes 5-parted with the divisions or teeth nearly equal.

Teucrium. Corol deep-cleft on the upper side and without an upper lip; lower lip 3-cleft, the

middle division rounded : stamens and pistils incurved, stamens exsert. 42. 39—(wood-sage, or wild germander.)

Isanthus. Calyx bell-form : corol 5-parted, tube strait, narrow ; divisions ovate equal : stamens nearly equal : stigma linear, recurved. 42. 39—(blue gentian.)

Verbena. Corol funnel form with a curved tube, border 5-cleft nearly equal : calyx 5-cleft : seeds 2 or 4 : sometimes but 2 stamens or 2 barren ones. 42. 39—(vervain.)

Lavandula. Calyx ovate subdentate, bracts under-studded : corol resupinate : stamens in the tube. 42. 39—(lavander.) Exotic.

Lamium. Corol with the upper lip entire, vaulted ; under lip 2-lobed ; throat with a tooth at each margin. 42. 39—(dead nettle.)

Brachystemum. Corol with the upper lip sub-emarginate, lower lip obtusely 3-lobed : filaments very short nearly equal : seed oblong-cylindric. 42. 39—(Virginian thyme.)

Pycnanthemum. Involucre bract-like, many-leaved, under small heads of flowers : calyx tubular, striate : corol with the upper lip sub-entire, lower lip 3-cleft : stamens nearly equal. 42. 39—(wild basil, or mountain mint.)

Nepeta. Calyx dry : striated : corol with a longish tube, under lip with the middle division crenate, throat with a reflected margin : stamens approximate. 42. 39—(catmint.)

Hyssopus. Corol with the under lip 3-parted, its intermediate division sub-crenate : stamens strait, distant. 42. 39—(hyssop.)

Mentha. Corol nearly equal, 4-cleft : broadest division emarginate : stamens erect, distant. 42. 39—(spear mint, pepper mint.)

Stachys. Corol with the upper lip vaulted, the lower lip reflexed at the sides, the middle division largest, emarginate : stamens reflexed towards the sides after discharging the pollen. 42. 39—(false horehound.)

Galeopsis. Calyx with the upper lip subcrenate, arched: lower lip 2-toothed above. 42. 39 (flowering nettle.)

Satureja. Calyx tubular, striate: corol with divisions nearly equal: stamens distant. 42. 39—(savory.)

Betonica. Calyx awned: corol with the upper lip ascending, flattish, tube somewhat cylindric. 42. 39—(betony, shell-flower.) Exotic.

Leonurus. Calyx 5-angled, 5-toothed, corol with the upper lip villose, flat entire: lower lip 3-parted, middle division undivided. 42. 39—(motherwort.)

Marrubium. Calyx salver-form, rigid, marked with 10 lines: corol with the upper lip 2-cleft, linear, strait. 42. 39—(horehound.)

Ballota. Calyx salver-form, 5-toothed, 10-striate: corol with the upper lip concave, crenate: seed ovate, 3-sided. 42. 39—(false motherwort.)

Cunila. Calyx cylindric, 5-toothed, throat villose, corol ringent; upper lip erect, flat, emarginate: 2 of the stamens usually barren. 42. 39—(dittany.)

Hedeoma. Calyx 2-lipped, gibbose at the base: corol ringent: 2 of the stamens barren 42. 39—(penny-royal.)

Gleochoma. Calyx 5-cleft: each pair of anthers approaching so as to exhibit the form of a cross. 42. 39—(ground-ivy, gill-overground.)

B. *Calyxes 2-lipped.*

Melissa. Calyx dry, flattish above, with the upper lip sub-fastigiate: corol with the upper lip somewhat vaulted, 2-cleft; lower lip with the middle lobe cordate. 42. 39—(balm.)

Trichostema. Corol with the upper lip falcate: the under lip 3-parted with the middle division small, oblong: filaments very long-exsert. 42. 39—(blue-curls.)

Dracocephalum. Corol with the throat inflated; the upper lip concave, the middle division of the lower lip roundish, notched. 42. 40—(dragon-head.)

Ocymum. Calyx with the upper lip orbiculate, the lower one 4-cleft: corol resupinate; one lip 4-cleft, the other undivided: outer filaments sending out a process from the base. 42. 39—(sweet-basil.) Exotic.

Scutellaria. Calyx with an entire mouth, which is closed with a lid after the corol falls out: tube of corol bent. 42. 39—(skull-cap.)

Origanum. Calyxes collected into a 4-sided strobile-like cone, with broad intervening bracts: corol with the upper lip erect, flat: under lip 3-parted, divisions nearly equal. 42. 39—(marjoram.)

Thymus. Calyx with the throat closed with hairs: corol with the upper lip flat, emarginate; lower lip longer. 42. 39—(thyme.) Exotic.

Clinipodium. Involucre many-bristled, bract-like, under the whorl: perianth 2-lipped: corol with the upper lip flat, obcordate, strait. 42. 39—(field-thyme.)

Prunella. Calyx with the upper lip dilated: filaments 2-forked with an anther on one of the points: stigma 2-cleft. 42. 39—(self-heal, or heal all.)

Phryma. Calyx 5-toothed; seed single. (The under lip of calyx shorter, 2-toothed.) 40. 39—(lopseed.)

Order II. Angiospermia.

A. *Calyxes 2-cleft, or 2-leaved.*

Obolaria. Corol 4-cleft, bell-form: capsule 1-celled, 2-valved, many seeded: stamens from the divisions of the corol. [Persoon says the calyx is 5-cleft—Muhlenburgh says it is 2-leaved.] 40. 35—(penny-wort.)

B. *Calyxes 4-cleft.*

Orobanche. Calyx of 2-lobed lateral leafets: corol ringent: capsule 1-celled, 2-valved, many-seeded: glands under the base of the germ. 10. 35—(cancer-root, false beech-drops.)

Bartsia. Calyx lobed, emarginate, coloured: corol less than calyx; upper lip longest: capsule 2-celled; seed angled. 40. 35—(painted cup.)

Rhinanthus. Calyx inflated: corol ringent: the upper lip mostly compressed, the under lip spread 3-parted: capsule 2-celled, obtuse, compressed. 40. 35—(yellow-cockscomb.)

Euphrasia. Calyx cylindric: corol 2-lipped; upper lip 2-cleft, lower lip 3-lobed, with the divisions 2-cleft: lower anthers lobed spinose. 40. 35—(eye-bright.)

Melampyrum. Corol with the upper lip compressed, the margin folded back: capsule 2-celled, oblique, dehiscent on one side: seeds 2, gibbous. 40. 35—(cow-wheat.)

Schwalbea. Calyx tubular-inflated; upper division small, lower division large emarginate: corol ringent: capsule ovate, compressed, 2-celled, 2-valved with a double partition: seeds many, chaffy. 40. 40—(chaff-seed.)

C. *Calyxes 5-cleft or 5-leaved.*

Limosella. Calyx 5-cleft: corol 5-cleft, equal: stamens approaching each other by pairs: capsule 1-celled, 2-valved, many seeded. 40. 40—(mudwort.)

Zapania. Flowers capitate: calyx 5-toothed: corol 5-cleft: stigma head-peltate, oblique: pericarp bladder-like, vanishing, connecting the two seeds. 40. 40—(fog-fruit.)

Browallia. Calyx 5-toothed: corol with a closed navel: anthers 2, large: capsule 1-celled. 40. 40. Exotic.

Scrophularia. Calyx 5-cleft: corol subglobose resupinate, middle division of lower lip

reflexed : capsule 2-celled. 40. 40—(figwort.)

Erinus. Calyx 5-leaved : corol with the limb equally 5-cleft, lobes emarginate ; upper lip very short, reflexed : capsule 2-celled. 40. 35—(erinus.)

Bignonia. Calyx 5-cleft cup-form : corol with the throat bell-form, 5-cleft, ventricose beneath : capsule silique-like, 2-celled : seed membrane-winged. 40. 45—(trumpet-flower.)

Ruellia. Calyx 5-parted, often 2-bracted : corol somewhat bell-form, limb 5-lobed : stamens conjugate : capsule tapering to both ends, toothed, elastically dehiscent : seeds few. 40. 36—(ruel.)

Buchnera. Calyx obsoletely 5-toothed : corol with the limb in 5 equal divisions, the lobes cordate : capsule 2-celled. 40. 34—(blue hearts.)

Antirrhinum. Calyx 5-leaved or deeply 5-parted, the two lower divisions remote : corol ringent, spurred or with a prominent base, the gape closed with a prominent palate : capsule ovate, 2-valved, dehiscent at the apex, 40. 40—(snap-dragon, toad-flax.)

Gerardia. Calyx 5-cleft : corol 2-lipped ; lower lip 3-parted with emarginate lobes, middle one 2-parted : capsule 3-celled, dehiscent at the base. 40. 40—(false-foxglove.)

Digitalis. Calyx 5-parted : corol bell-form, ventricose, 5-cleft : capsule ovate, 2-celled.—(Flowers racemed.) 40. 40—(foxglove.)

Pedicularis. Calyx 5-cleft or obliquely truncate : corol ringent : capsule 2-celled, mucronate, oblique : seeds numerous, coated. (Leaves many-cleft.) 40. 35—(lousewort, high heal-all.)

Mimulus. Calyx prismatic, 5-toothed : corol ringent, upper lip folded back upon its sides : stigma thick : capsule 2-celled, many-seeded. 40. 45—(monkey-flower.)

Chelone. Calyx 5-cleft or 5-leaved : corol ringent inflated : the upper lip emarginate obtuse, under lip slightly 3-cleft : the rudiment of

a smooth filament between the two tallest stamens : capsule 2-celled. 40. 45—(snake-head.)

Pentstemon. Calyx 5-cleft or 5-leaved : corol ringent, inflated ; the rudiment of a bearded filament between the two tallest stamens : capsule 2-celled. (Taken from the last genus.) 40. 35—(beard-tongue.)

Martynia. Calyx 5-cleft : corol ringent almost bellform : capsule woody and barked, with a hooked beak ; 4-celled, 2-valved. 40. 42—(unicorn-plant.)

* Linnæa, Verbena.

CLASS XV. TETRADYNAMIA.

Order I. Siliculosa.

All plants of this class have flowers with 4-leaved calyxes and cruciform corols.

A. *Silicle without a notch at the end.*

Myagrum. Silicle suberose, valveless ; the cells fertile and barren, mutually or alternately placed over each other : cotyledons flat. 39. 63—(false scurvy-grass.)

† Draba. Silicle oval-oblong, valves flattish, parallel to the partition : style none. 39. 63—(whitlow-grass.)

Lunaria. Silicle entire, oval, flat-compressed, pedicelled ; valves equalling the partition, parallel, flat : calyx consists of coloured sack-like leafets. 89. 63—(honesty, or satin-flower.) Exotic.

Bunias. Silicle somewhat 4-sided, not opening by valves, caducous ; 2 or 4-celled, wrinkled, 39. 63—(sea-rocket.)

Isatis. Silicle compressed, oblong, ligulate, valveless, 1-seeded : partition like lattice work. 39. 63—(woad.) Exotic.

B. *Silicle with a notch at the end.*

Alyssum. Filaments of the 2 shorter stamens

marked with a tooth : silicle emarginate, often hairy. 39. 63—(madwort, gold of pleasure.)

Cochlearia. Silicle thick, rugose, many-seeded, 2-valved ; the valves gibbous obtuse. 39. 63—(scurvy-grass, horse-radish.)

Iberis. Corol irregular, the two exterior petals are longest : silicle emarginate, many-seeded. 39. 63—(candy tuft.) Exotic.

Lepidium. Calyx spreading : corol regular : silicle emarginate, cordate, many-seeded : valves carinate, partition contrary. 39. 63—(pepper-grass.)

Thlaspi. Calyx spreading : silicle emarginate, obcordate, many-seeded ; valves resemble 2 boats with the keels outward. 39. 63—(shepherd's-purse.)

* Sisymbium.

Order II. Siliquosa.

A. *Calyx leaves converging or closed upon the corols, when the flowers are mature.*

Arabis. Glands 4, one within each leafet of the calyx, of the size of the reflected scale : silique compressed, torulose, subdivaricate. 39. 63—(wall-cress.)

Turritis. Calyx converging, erect : corol erect : silique very long, angled, striate. 39. 63—(tower-mustard.)

Dentaria. Calyx longitudinally converging ; silique bursting elastically with revolute valves : the partition thick and fungus-like : stigma emarginate. (Roots always fleshy with tooth-like processes.) 39. 63—(tooth-root, trickle-root.)

Hesperis. Calyx closed, shorter than the claws of the petals : petals, when bent obliquely, are linear or obovate : silique sub-terete : stigmas forked, with converging apexes. 39. 63—(rocket.)

Erysimum. Calyx closed ; silique columnar, exactly 4-sided. 39. 63—(hedge-mustard.)

Brassica. Calyx erect, converging: partition extending beyond the valves of the silique: seed globose: glands between the short stamens and pistil, and between the long stamens and calyx. 39. 63—(cabbage, turnip.) Exotic.

Raphanus. Calyx closed, setose: silique torose, somewhat jointed, terete, not opening by valves, 1 or 2-celled: glands between the short stamens and pistil, and between the long stamens and calyx. 39. 63—(radish.)

Cheiranthus. Calyx closed, two of the leaflets gibbous at the base: petals dilated: silique when young with a glandular tooth each side: stigma 2-lobed: seed flat. 39. 63—(stock-july-flower, wall-flower.) Exotic.

B. *Calyx-leaves spread, not lying closed upon the corol when the flowers are mature.*

Cardamine. Calyx leaves spreading but little: stigma entire: a single gland between each of the short stamens and the calyx: silique long bursting elastically with revolute valves. 39. 63—(American water-cress.)

Sisymbrium. Calyx and corol spreading: silique bursting, with a short terete beak, valves straitish. 39. 63—(English water-cress, water-radish.)

Sinapis. Calyx spreading: corol with strait claws: glands between the short stamens and pistil, and between the long stamens and calyx: partition extending beyond the valves of the silique, ensiform. 39. 63—(mustard.)

CLASS XVI. MONADELPHIA.

Order III. Triandria.

Sisyrinchium. Spathe 2-leaved: perianth 0: corol superior, 6-cleft, tubular: style 1: capsule 3-celled. 6. 18—(blue-eyed grass.)

Order V. Pentandria.

Passiflora. Calyx 5-parted, coloured: corol 5-petalled, on the calyx: nectary, a triple filamentous crown within the petals: berry pedicelled. 34. 97—(passion flower.) Southern states.

Erodium. Calyx 5-leaved: corol 5-petalled: nectariferous scales 5-alternating with the filaments: arils 5, 1-seeded, awned, beaked at the base of the receptacle; awn spiral, bearded within. (Taken from the geranium.) 14. 73—(stork's bill.)

* Lysimachia, Linum, Anagallis.

Order VII. Heptandria.

Pelargonium. Calyx 5-parted, upper division broader, ending in a capillary nectariferous tube: corol 5-petalled, irregular, the two upper petals usually broader, with coloured veins: filaments 10, three of them usually without anthers: arils 5, each 1-seeded, awned, some of the awns spiral. 14. 73—(stork geranium.) Exotic.

Order X. Decandria.

Geranium. Calyx 5-leaved: corol 5-petalled, regular: nectariferous glands 5, adhering to the base of the long filaments: arils 5, 1-seeded, awned, beaked at the head of the receptacle: awn naked, strait. 14. 73—(cranebill, false crowfoot, herb-robert.)

Mimosa. Calyx 5-toothed: corol 5-cleft, 5-petalled, or 0: stamens capillary, very long, 4 to 10 or more, sometimes not united: legume sometimes jointed. 33. 93—(sensitive plant.)

Order XIII. Polyandria.

Gordonia. Calyx simple, 5-leaved or 5-parted: corol 5-petalled adhering at the base: style 5-cornered, stigma 5-cleft: capsule 5-celled: columella columnar: seeds 2 with leaf-like wings. 37. 74—(leaf-seed.)

Napaea. Calyx bellform, 5-cleft, simple: petals 5: capsule orbicular, depressed, 10-celled: seed solitary. (Pedicels not jointed.) 37. 74.

Sida. Calyx simple, angular, 5-cleft: style many-parted: capsules many, 1 or 3-seeded. (Pedicel articulated under the apex.) 37. 74—(Indian-mallows.)

Hibiscus. Calyx double, outer one many-leaved, inner one about 5-cleft: stigmas 5: capsule 5 or 10-celled, many-seeded. 37. 74—(hibiscus, okra.)

Malva. Calyx double, outer one 3-leaved, inner one 5-cleft: capsules many, 1-seeded. 37. 74—(mallows.)

Althaea. Calyx double, outer one 6 or 9-cleft: capsules many, 1-seeded. 37. 74—(hollyhock.) Exotic.

Lavatera. Calyx double, outer one 3-cleft: capsules many, many seeded. 37. 74—(tree mallows.) Exotic.

Gossypium. Calyx double, outer one 3-cleft: capsule 4-celled, seeds involved in wool. 37. 74—(cotton.) Exotic.

CLASS XVII. DIADELPHIA.

From Order V. Pentandria, to Order VIII. Octandria.

Petalostemon. Petals 4, with the stamens inserted between them, both united together in a fissure: banner none, and in its place is a fifth petal: legume covered with the calyx, 1-seeded. 32. 93—(split flower.)

Fumaria. Calyx 2-leaved, caducous: corol irregular, spurred at the base: filaments 2, each with 3 anthers: capsule drupe-like, 1-celled, 1-seeded, not opening by valves; seed affixed to the side of the cell. 24. 62—(fumitory.)

Corydalis. Calyx 2-leaved : corol ringent, 1 or 2-spurred : filaments 2, membranaceous, each with 3 anthers : capsule silique-like, many seeded. 24. 62—(colic weed.)

Polygala. Calyx 5-leaved, unequal, 2 of the leafets wing-like, larger, coloured : corol irregular (or rather, calyx 3-leaved, corol imperfectly papilionaceous) capsule obcordate, 2-celled, 2-valved. Keel of corol sometimes appendaged. 33. 35—(snake-root, milk-wort, low centaury.)

Order X. Decandria.

A. *Stamens united in one set.*

Amorpha. Calyx bellform, 4 or 5-cleft : banner ovate, concave, wings and keel 0 : legume 2-seeded, falcate. 32. 93—(false indigo.)

Lupinus. Corol 2-lipped : anthers, 5 oblong and 5 roundish : legume coriaceous, torulose. 32. 93—(lupine.)

Crotolaria. Corol with the banner cordate, large : keel acuminate : filaments connate, with a dorsal fissure : style curved : legume pedicelled, turgid. 32. 93—(rattle box.)

Spartium. Calyx extended downwards : keel generally pendant : filaments adhering to the germ : stigma villose lengthwise on the upper side : legume oblong, 1 or many-seeded. 32. 93—(Spanish broom.) Exotic.

Genista. Calyx 2-lipped, 2 upper teeth very short : banner oblong, reflexed back from the pistil and stamens. 32. 93—(kneed-grass.)

Arachis. Calyx 2-lipped : corol upside down legume gibbous, torulose, veiny, coriaceous. 32. 93—(pea-nut.)

Ulex. Calyx 2-leaved, 2-bracted : stamens all united : legume scarcely longer than the calyx, spinose. 32. 93—(furze.) Exotic.

B. *Stamens in 2 sets; generally 9 in one set, and 1 alone in the other.*

1. *Legume many-seeded, stigma pubescent.*

Pisum. Calyx with the divisions leaf-like, about equal: banner protruding 2 folds: style compressed, carinate, villose above: legume without down at the suture. 32. 93—(pea.)

Lathyrus. Calyx with the two upper divisions shorter: style flat, villose above, broader towards the top. (Stem mostly winged, leafets 2 or more, terminated by a divided tendril.) 32. 93—(sweet pea.)

Vicia. Calyx emarginate above, 2-toothed; 3 strait long teeth below: banner emarginate: stigma bearded transversely on the lower side. 32. 93—(vetch.)

Phaseolus. Keel, stamens and style spirally twisted together. 32. 93—(bean.)

Dolichos. Banner with two oblong parallel processes at the base, compressing the wings beneath them. 32. 93—(cowhage.)

Robinia. Calyx 4-cleft, upper division 2-parted: banner large, reflexed, roundish: legume gibbous, elongated. 32. 93—(locust tree.)

Colutea. Calyx 5-cleft: legume inflated, opening on the upper suture at the base. 32. 93 (bladder senna, bush locust.) Exotic.

Glycyrrhiza, or Liquiritia. Calyx tubular, equal, 5-parted: banner erect, reflexed at the sides; wings spreading; keel 2-cleft: legume oblong, glabrous, 3 or 4-seeded. (Flowers racemed.) 32. 93—(liquorice.) Exotic.

Indigofera. Calyx spreading: keel with a subulate spur both sides: legume linear, small, terete or quadrangular. 32. 93—(indigo.) Exotic.

Scorpiurus. Calyx 5-cleft: corol carinate 2-cleft below: loments with cells separated by isthmuses, revolute, furrowed. 32. 93—(catepillars.) Exotic.

2. *Legume many-seeded, stigma without pubescence.*

Vexillaria.* Banner very large, spreading, overshadowing the wings : calyx bellform or tubular : legume linear, very long, acuminate. 32. 93—(butterfly-weed.)

Galactia. Calyx 4-toothed, 2-bracted : petals all oblong, banner broader incumbent : stigma obtuse : legume terete : seeds roundish. 32. 93—(milk-way plant.)

Glycine. Calyx 2-lipped, the tooth of the lower lip longest : the end of the keel curling upwards, and in appearance pushing back the banner : style incurved with the keel : legume oblong compressed. 32. 93—(wild bean, wild liquorice, ground-nut.)

Galega. Calyx with subulate teeth nearly equal : legume torulose, teretish. (Very glabrous pinnate leaves.) 32. 93—(goat's rue.)

3. *Legumes few-seeded.*

Medicago. The keel deflected from the direction of the banner : legume compressed, cochleate. 32. 93—(lucerne clover, medick.)

Trigonella. Banner and wings nearly equal, spreading, appearing like a 3-petalled corol : legume bowed, rugose-veiny. 32. 93—(fenugreek.) Exotic.

Astragalus. Calyx 5-toothed : keel obtuse : legume somewhat 2-celled, incurved at the suture below. 32. 93—(milk vetch.)

4. *Legumes about* 1-*seeded.*

Trifolium. Flowers sub-capitate : legume included in the calyx, not opening by valves, 1 to 4-seeded. (Leaves always ternate.) 32. 93—(clover.)

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* This name is given as a substitute for that of the 1712th genus of Persoon, which is so severely censured by Doctor Smith, in Rees' Cyclopædia.

Melilotus. Flowers racemed: calyx tubular, 5-toothed: keel simple, shorter than the wings and banner: legume rugose, longer than the calyx. (Taken from the trifolium.) 32. 93—(melilot clover.)

Lespedeza. Calyx 5-parted, divisions nearly equal: keel of the corol transversely obtuse: legume lens-form, unarmed, 1-seeded. (Leaves always ternate. Taken from the hedysarum.) 32. 93—(bush clover.)

5. Legumes jointed, or in loments.

Hedysarum. Calyx 5-cleft: keel of corol transversely obtuse: loment many-jointed, joints 1-seeded, compressed, generally hispid. (Most, or all the species in the northern states have ternate leaves.) 32. 93—(bush-trefoil.)

Stylosanthes. Calyx tubular, very long, bearing the corol which originates higher than the top of the germ: loment two jointed, hooked. (Sometimes the pod is in a single joint.) 39. 93—(pencil-flower.)

Aeschynomene. Calyx 2-lipped: loment compressed, one suture strait, another lobed; joints truncate, 1-seeded. 32. 93—(false sensitive plant.)

POLYADELPHOUS PLANTS.

The genera Ascyrum and Hypericum were placed in the class *polyadelphia* by Linneus, and are still retained in that class by many authors. We, following Persoon's method, have removed them to the class *polyandria*, and left the class *polyadelphia* out of the system.

CLASS XVIII. SYNGENESIA.

Order I. Polygamia Æqualis.

A. Florets ligulate.

Tragopogon. Calyx simple, many-leaved:

receptacle naked: egret plumose and stiped.† 45. 53—(goats's beard, vegetable oyster.)

Scorzonera. Calyx imbricate, scales scarious at the margin: receptacle naked: egret plumose, substiped. 49. 55. (viper's grass.) Southern states.

Apargia. Calyx imbricate: receptacle naked: egret plumose, sessile. (Taken from the leontodon.) 49. 53—(false hawkweed.)

Leontodon. Calyx double: receptacle naked: egret plumose, stiped. 49. 53—(dandelion.)

Prenanthes. Florets in a simple series (or in one circular row:) calyx calycled: receptacle naked: egret simple, sub-sessile. 49. 53—(white lettuce.)

Lactuca. Calyx imbricate, cylindric, with the margin membranaceous: receptacle naked: egret simple, stiped: seed smooth. 49. 63—(lettuce.)

Hieracium. Calyx imbricate, ovate; egret simple, sessile: receptacle naked or sub-pilose.—(From white becoming yellowish.) 49. 53—(hawkweed.)

Sonchus. Calyx imbricate inflated: egret pilose, sessile: receptacle naked. 49. 53—(swine-thistle.)

Cynara. Receptacle bristly: calyx dilated, imbricate; scales with fleshy base, emarginate, pointed: egret plumose, sessile. 49. 54—(garden artichoke.) Exotic.

Hyoseris. Calyx sub-globular, calycled, the exterior very small: receptacle naked: egret unequal, outer simple pilose, inner membranaceous: seed near the margin often involved in the scales of the calyx. 49. 53—(swine lettuce.)

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† Pull off the corol, stamens and styles; whatever is left on the germ is the egret. In some flowers the stipe to stiped egret will not appear before full maturity. Pull off all the germs; if nothing is left, the receptacle is naked. But whatever is left belongs to the receptacle, and gives it the character of chaffy, hairy or bristly.

Picris. Calyx calyculated: receptacle naked: egret plumose, stiped: seed transversely striate. 49. 55—(oxtongue.)

Krigia. Calyx simple, many-leaved: egret 5 membranous leaves with 5 alternating bristles: receptacle naked. 49. 53—(dwarf-dandelion.)

Tolpis. Calyx caliculated; scales lax, subulate, a little longer than the calyx: receptacle pitted: egret setose, with margin dentate. 49. 55—(hawksbeard.) Exotic.

Cichorium. Calyx calycled: egret many chaffy leaves: receptacles somewhat chaffy. 49. 53—(succory or endive.)

Scolymus. Calyx imbricate, spinose, surrounded with spinose leafets: receptacle chaffy: egret none. 49. 55—(golden-thistle.) Exotic.

B. *Florets tubulous; flowers capitate.*

Liatris. Calyx imbricate, oblong: egret plumose coloured: receptacle naked. (Flowers purple.) 49. 54—(gay feather.)

Vernonia. Calyx imbricate, ovate; egret double, exterior chaffy and short, interior capillary: receptacle naked: stigma 2-cleft, shortish. 49. 55—(flat-top.)

Cnicus. Calyx imbricate, with prickly scales: receptacle villose: egret plumose. (Taken from the carduus.) 49. 54—(thistle.)

Carthamus. Calyx ovate, imbricate with scales, ovatish-leafy at apex: egret chaff-hairy or none: receptacle chaff-bristly. 49. 54—(false-saffron.) Exotic.

Onopordon. Calyx imbricate with sharp-mucronate scales: egret pilose, caducous: receptacle alveolate: seed transversely sulcate. 49. 54—(cotton thistle.)

Carduus. Calyx ovate, imbricate with prickly scales: receptacle villose: egret pilose. 49. 54—(comb-tooth thistle.)

Arctium. Calyx globose, with scales hooked

at apex : egret chaff-bristly : receptacle chaffy. 49. 54—(burdock.)

Sparganophorus. Calyx sub-globose, imbricate with unequal scales recurve-spreading at the tips : receptacle naked : seed with the cup-like crown subcartilagenous. 49. 55—(crown-cup.)

C. *Florets tubulous ; flowers discoid.*

Bidens. Calyx calycled, nearly equal ; sometimes the flower is furnished with one or two radiate florets : receptacle chaffy, flat : egret 2, 3 or 4 awns with reflexed and erect lateral prickles : seed 4-cornered. 49. 55—(burr-marigold, beggar ticks.)

Kuhnia. Calyx imbricate, cylindrical : egret plumose, sessile : receptacle naked. 49. 55—(false boneset.)

Eupatorium. Calyx inbricated (rarely simple) oblong : style long, cloven half way down : egret pilose or rough papillose : receptacle naked. 49. 55—(boneset, thoroughwort, joe pye.)

Ethulia. Calyx equal, subglobose, subsquarrose : florets deformed ; those of the disk 5-cleft, those of the ray subulate and some only pistillate : receptacle naked : egret none. 49. 55—(floating daisy.)

Mikania. Calyx 4 or 6-leaved, equal ; 4 or 6-flowered ; receptacle naked : egret pilose. 49. 55—(climbing boneset.)

Cacalia. Calyx cylindric, oblong ; somewhat calycled at the base : receptacle naked : egret pilose. (Leaves mostly succulent.) 49. 55 (wild caraway.)

Balsamita. Calyx imbricate, orbicular : receptacle naked : egret none. 49. 55—(costmary.) Exotic.

Order II. Polygamia Superflua.

A. *Flowers discoid.*

Baccharis. Calyx, scales ovate subcoriaceous imbricate, cylindric, bellform or ovate : flo-

rets are pistillate and perfect intermixed: receptacle naked: egret pilose. (Sometimes the flowers are diœcious.) 49. 55—(grounsel tree.)

Conyza. Calyx imbricate with scales sublinear ovate: or hemispheric and sub-scarious: egret simple, capiliary: receptacle naked. Florets of the ray with a 3-cleft border, not composing a ray in appearance. 49. 55—(plowman's wort.)

Gnaphalium. Calyx imbricate, with the marginal scales rounded, scarious, shortish, glossy, coloured: receptacle naked: egret pilose or plumose. (Florets often all perfect.) 49. 55—(life everlasting.)

Artemisia. Calyx imbricate, with scales rounded, converging: egret 0: receptacle somewhat villose or nakedish. (Flowers mostly rounded.) 49. 55—(wormwood, southern wood.)

Tanacetum. Calyx imbricate, hemispheric: scales acuminate: rays obsolete, 3-cleft: egret somewhat marginal: receptacle naked. (Flowers corymbed.) 49. 55—(tansy.)

B. *Flowers radiate.*

Chrysanthemum. Calyx hemispherical, imbricate, with the scales membranous at the margin: receptacle naked: egret none, or a narrow margin. 49. 55—(ox-eyed daisy, feverfew.)

Zinnia. Calyx ovate-cylindric, imbricate: florets of the ray 5, permanent, entire: receptacle chaffy: egret 2 erect awns. 49. 55—(zinnia.)

Tagetes. Calyx simple, 1-leafed, 5-toothed, tubular: florets of the ray 5, permanent: egret 5 erect awns: receptacle naked. 49. 55—(marigold.) Exotic.

Bellis. Calyx hemispherical, scales equal: egret 0: receptacle naked conical: seed obovate. 49. 55—(garden daisy.) Exotic.

Pyrethrum. Calyx hemispherical, imbricate with scales acutish and scarious margined: egret a marginal ring: receptacle naked. (Tak-

en from Chrysanthemum.) 49. 55—(wild feverfew.)

Arnica. Calyx with leafets equal: egret simple: receptacle naked. The florets of the ray usually have 5 filaments without anthers. 49. 55—(arnic.)

Doronicum. Calyx-scales equal, in two rows, longer than the disk: egret simple: receptacle naked: seeds of the ray naked and destitute of egret. 49. 55—(leopard's bane.)

Inula. Calyx imbricate or squarrose: egret simple: anthers ending in 2 bristles at the base: receptacle naked: ray florets numerous. 49. 55—(elecampane.)

Erigeron. Calyx imbricate: egret pilose: receptacle naked: florets of the ray linear, very narrow, numerous. 49. 55—(flea-bane, pride-weed.)

Solidago. Calyx-scales imbricate, closed: egret simple: receptacle naked, furrowed with dots or punctures: ray-florets about 5. (Yellow.) 49. 55—(golden rod.)

Senecio. Calyx cylindric; leafets with withering, blackish tips, and a few small calycle leafets at the base: egret simple: receptacle naked. 49. 55—(rag-wort, fireweed.)

Tussilago. Calyx simple, scales equal, and equalling the disk, sub-membranous: receptacle naked: pistillate florets ligulate or without teeth: egret simple, sessile. 49. 55 (Sometimes polygamous.) (coltsfoot.)

Cineraria. Calyx simple, many-leaved, equal: receptacle naked: egret simple. 49. 55—(ash-wort.)

Aster. Calyx imbricate, the inferior scales spreading: egret simple: receptacle naked, scrobiculate. (Florets of the ray more than 10, except in solidaginoides, and a few other species.) 49. 55—(star-flower.)

Heliopsis. Calyx imbricate with ovate-linear

scales: ray florets linear, large: receptacle chaffy, conic; the chaffs lanceolate: seed 4-sided: egret o. 49. 55—(sun-ray.)

Buphthalmum. Calyx leafy; receptacle chaffy: egret marginal 4-toothed or obsolete: seeds of the ray margined, and sometimes of the disk. 49. 55—(ox-eye.) Southern states.

Helenium. Calyx 1-leaved, many parted: egret 5 chaffy leaves: receptacle naked in the disk, chaffy in the ray: florets of the ray half-3-cleft: seed villose. (Leaves decurrent.) 49. 55—(false-sunflower.)

Boltonia. Calyx imbricate: egret tooth-awned, somewhat 2-horned: receptacle hemispherical, alveolate: florets of the ray numerous: seed flat-compressed, margined. 49. 55—(false-chamomile.)

Matricaria. Calyx flat, imbricate, scales scarious at the margin: receptacle naked, cone-cylindric: egret none. 49. 55—(wild chamomile.)

Anthemis. Calyx hemispherical, nearly equal: egret 0, or a membraneous margin: florets of the ray more than 5: receptacle chaffy, the chaffs flat, with a rigid acuminate apex. 49. 55—(may-weed, chamomile.)

Achillea. Calyx imbricate, ovate: egret 0: receptacle chaffy: florets of the ray, 4 to 10, dilated. (Flowers corymbed.) 49. 55—(yarrow.)

Verbesina. Calyx in double order: receptacle chaffy: florets of the ray about 5: egret awned. 49. 55—(crown-beard.)

Order III. Polygamia Frustranea.

Rudbeckia. Calyx with a double order of scales: receptacle chaffy, conic: egret a 4-toothed margin or 0. 49. 55—(Cone-flower.)

Helianthus. Calyx imbricate, sub-squarrose, leafy: receptacle flat, chaffy, egret 2-leaved, caducous. 49. 55—(sunflower, Jerusalem artichoke.)

Coreopsis. Calyx double, also many-leaved: seeds compressed emarginate: receptacle chaffy: egret 2-horned. 49. 55—(tickseed sun-flower.)

Centaurea. Calyx various, mostly imbricate, roundish: egret simple, various: receptacle bristly: corols of the ray funnel-shape, longer, irregular. 49. 54—(blue-bottle, blessed thistle.)

Order IV. Polygamia Necessaria.

Silphium. Calyx squarrose, scales leafy, broad: egret a 2-horned-margin: receptacle chaffy: seeds compressed, obcordate, margined. 49. 55—(ragged cup.)

Polymnia. Calyx double, exterior 4-5-leaved, interior 10-leaved, leafets concave: egret 0: receptacle chaffy. 49. 55—(leaf-cup.)

Calendula. Calyx many-leaved, equal: receptacle naked: egret none: seeds of the disk membranaceous. 49. 55—(pot-marygold.) Exotic.

Iva. Calyx 3-leaved: styles 2, long: seed naked, obtuse: receptacle hairy: ray 5-flowered. 49. 55—(high water shrub.)

Order V. Polygamia Segregata.

Elephantopus. Common calyx 3-leaved, partial calyx 4-flowered: florets ligulate: receptacle naked: egret setaceous. 49. 55—(elephant foot.) Southern states.

Echinops. Proper calyx 1-flowered: corol tubular, perfect: receptacle setose: egret obsolete. 49. 55—(globe thistle.) Exotic.

CLASS XIX. GYNANDRIA.

Order I. Monandria—or Order II. Diandria.

Calyx 5-leaved coloured, (or corol 5-petalled.)

A. *With a spur under the lower lip.*

Orchis. Calyx ringent-like, the upper leaf-

ets vaulted: lip dilated, spur long: anther terminal adnate. 7. 21—(orchis.)

Limodorum. Calyx somewhat spreading: lip spreading, elongated at the base into a spur: anther a terminal lid, caducous. 7. 21—(limodore.)

Satyrium. Calyx ringent-like, upper leafet vaulted: lip linear, parted or sub-entire: spur short, sub-inflated and somewhat 2-lobed: anther terminal adnate. 7. 21—(satyrion.)

B. *Lower lip without a spur.*

Neottia. Calyx ringent-like, the outer side leafets united before about the inflated base of the lip: anther parallel to the acuminate style, affixed behind. 7. 21—(ladies tresses.)

Epipactis. Calyx erect, spreading: anther a permanent lid: tip flat, pendulous, 2-cleft at the apex. 7. 21—(lily orchis.)

Cymbidium. Calyx 4 or 5-leaved, erect or spreading: lip concave at the base, with a spreading border: anther a deciduous lid: pollen globose. 7. 21—(coral root, grass-pink.)

Malaxis. Calyx spreading, turned upside down by the twisting of the peduncle when the petals open: lip ascending, concave, spreading: anther a lid. 7. 21—(twayblade.)

Arethusa. Calyx somewhat ringent-like; leafets somewhat converging: anther a permanent lid: pollen powdery-granulated. 7. 21—(arethusa, snake-mouth.)

Order II. Diandria.

Cypripedium. Calyx coloured, 4-leaved, spreading: lip inflated, hollow: style with a terminal lobe; and a petal-like appendage on the upper side. 7. 21—(ladies' slipper.)

Order V. Pentandria.

Asclepias. Follicles 2: nectaries 5, concave,

containing a little horn: petals reflexed. 30. 47—(milk-weed or silk-weed.)

Cynanchum. Calyx 5-toothed: corol wheel-form: nectary cylindric, 5-toothed: follicles 2. 30. 47—(choak-dog.)

Order VI. Hexandria.

Aristolochia. Calyx 0: corol superior, 1-petalled, ligulate, inflated at the base: capsule 6-celled, many-seeded. 11. 23—(birth-wort.)

* Arum was formerly placed here, but is now removed to class *monoecia*.

CLASS XX. MONOECIA.

Order I. Monandria.

Fluvialis. Staminate flowers—calyx 0: corol 0: anther sessile. Pistillate flowers—calyx 0: corol 0: style filiform: stigma 2-cleft: capsule 1-seeded. 15. 6. (Flowers axillary)—(river-nymph.)

Chara. Staminate flowers—calyx 0: corol 0: anther globose, sessile. Pistillate flowers—calyx 0: corol 0: style 0: stigmas 5: berry 1-celled, many seeded. (Aquatics.) 15. 6—(chara.)

Najas. Staminate flowers—calyx 2-lobed: corol 4-cleft: anthers sessile, cohering. Pistillate flowers—calyx 0: corol 0: style subulate: stigma 2 or 3-cleft: capsule 1 to 4-seeded. 15. 6—(water-nymph.)

Order II. Diandria.

Lemna. Staminate flowers—calyx 1-leafed: corol 0. Pistillate flowers—calyx 1-leafed: corol 0; capsule 1-celled, 2-seeded. 54. 6—(duck-meat, water flaxseed.)

Podostemum. Staminate flowers—calyx 0; corol 0: stamens affixed to a pedicel. Pistillate flowers—calyx 0: corol 0: germ ovate: stigma 1, sessile: capsule 2-celled, 2-valved, many-seeded. 54. 6—(thread-foot.)

Order III. Triandria.

Typha. Ament cylindric. Staminate flowers—calyx obsolete, 3-leaved: corol 0. Pistillate flowers—below the staminate: calyx 0: corol 0: seed 1, pedicelled; the pedicels surrounded at the base with long hairs resembling egret. 3. 8—(cat-tail, or reed mace.)

Sparganium. Staminate flowers--ament roundish: calyx 3-leaved: corol 0. Pistillate flowers—calyx 3-leaved: corol 0: stigma 2-cleft; drupe juiceless, 1-seeded. 3. 8—(burr-reed.)

Zea. Staminate flowers—calyx-glume 2-flowered, awnless: corol glume awnless. Pistillate flowers—calyx-glume 2-valved: style 1, filiform, pendulous: seed solitary, immersed in an oblong receptacle. 4. 10—(Indian corn.)

Tripsacum. Staminate flowers—calyx-glume 2-flowered, outer one staminate, inner one neutral: corol-glume membranaceous. Pistillate flowers—calyx-glume 1-flowered, covered with a 1-leafed involucre perforated with hollows: corol-glume 2-valved: styles 2: seed 1. 4. 10—(sesame grass.)

Coix. Staminate flowers—in remote spikes: calyx-glumes 2-flowered, awnless: corol-glume awnless. Pistillate flowers—calyx-glume 2-flowered: corol-glume awnless: style 2-parted: seed covered with the bone-like calyx. 4. 10—(Job's tear.)

Carex. Aments imbricate (usually in cylindric spikes.) Staminate flowers—calyx-scales solitary: corol 0. Pistillate flowers—calyx-scales solitary: corol inflated, monopetalous, 2-toothed at the apex: stigmas 2 or 3: nut 3-sided, inclosed in the permanent corol, which becomes an utriculus-like permanent aril. 3. 9—(sedge.)

Scleria. Staminate flowers--calyx-glume 2 or 6-valved, many-flowered: corol-glumes awnless. Pistillate flowers—calyx like the staminate: corol 0: stigmas 1 to 3: nut coloured, sub-globose. 3. 9—(whip-grass.)

Comptonia. Staminate flowers—ament cylindric with calyx-scales : corol 2-petalled : filaments 2-forked. Pistillate flowers—spike or ament ovate, corol 6-petalled : styles 2 : nut ovate. 50. 99—(sweet-fern.)

Eriocaulon. Common calyx many-leaved ; florets many in an imbricate head : corol 3 to 6-petalled : stamens higher than the germ : capsule 3-celled : seed 1. crowned with the corol.—Central flowers staminate. 6. 13—(pipe-wort.)

Order IV. Tetrandria.

Aucuba. Staminate flowers—calyx 4-toothed : corol 4-petalled : receptacle pierced with 4 holes. Pistillate flowers—calyx and corol as in the staminate : germ inferior : style 1, short : nut ovate 1-celled.—(japan shrub.) Exotic.

Boehmeria. Staminate flowers----calyx 4-parted : corol 0 : nectary 0 : Pistillate flowers—calyx 0 : corol 0 : styles 2 : seed 1, compressed. (Flowers capitate.) 53. 98—(round-head.)

Urtica. Staminate flowers---calyx 4-leaved : corol 0 : nectary central cyathiform. Pistillate flowers—calyx 2-leaved (2-valved :) corol 0 : seed 1, glossy. 53. 98—(nettle.)

Parietaria. Polygamous. Perfect flowers—calyx 4-cleft inferior : corol 0 : stamens elastic : style 1 : seed 1. Pistillate flowers—calyx 2-leaved : seed covered with the dried elongated calyx. 53. 98—(pellitory.)

Morus. Staminate flowers—calyx 4-parted : corol 0. Pistillate flowers—calyx 4-leaved : corol 0 : styles 2 : calyx berried : seed 1. 53. 98—(mulberry.)

Alnus. Staminate flowers—ament composed of wedge-form truncate 3-flowered receptacles : calyx a scale : corol 4-parted. Pistillate flowers—calyx 2-flowered scales : corol 0 : seed compressed ovate wingless. 50. 99—(alder.)

Serpicula. Staminate flowers—calyx 4-toothed: corols 4-petalled. Pistillate flowers—calyx 4-parted: nut tomentose. 15. 88—(little snakeweed.)

Buxus. Staminate flowers—calyx 3-leaved: petals 2: germ a mere rudiment. Pistillate flowers—calyx 4-leaved: petals 3: styles 3: capsules 3-beaked, 3-celled: seeds 2. 38. 96—(box.)

* Najas.

Order V. Pentandria.

Xanthium. Staminate flowers—common calyx imbricate: corol 5-cleft, funnelform: receptacle chaffy. Pistillate flowers—involucre 2-leaved, 1-flowered: corol 0: drupe dry, muricate, 2-cleft: nut 2-celled—(sea-burdock.)

Ambrosia. Staminate flowers—common calyx 1-leaved: corol 1-petalled, 5-cleft, funnel-form: receptacle naked. Pistillate flowers—calyx 1-leafed, entire, the swelling part 5-toothed, 1-flowered: corol 0: nut from the indurated calyx, 1-seeded. 54. 32—(hogweed.)

Amaranthus. Staminate flowers—calyx 3 or 5-leaved: corol 0: stamens 3 or 5. Pistillate flowers.—calyx and corol as the staminate: styles 3: capsule 1-celled, opening transversely: seed 1. 54. 30—(amaranth, red-cockscomb.)

Order VI. Hexandria.

Zizania. Staminate flowers—calyx 0: corol-glume 2-valved, awnless, with pistillate flowers intermixed. Pistillate flowers—calyx 0: corol-glume 2-valved, cuculate, awned: style 2-parted; seed 1 invested in the plaited corol. 4. 10—(water-oats.)

Order XIII. Polyandria.

Ceratophyllum. Staminate flowers—calyx many-parted: corol o: stamens 16—20, with tricuspidate anthers. Pistillate flowers—calyx

and corol as in the staminate : pistil 1 : nut 1-seeded. 15. 6—(hornwort.)

Myriophyllum. Staminate flowers—calyx 4-cleft : petals 4, caducous : stamens 4, 6 or 8. Pistillate flowers—calyx and corol like the staminate : pistils 4 : style 0 : seeds 4, having a bark. 15. 6—(water milfoil.)

Sagittaria. Staminate flowers—calyx 3-leaved : corol 3-petalled : filaments mostly 24. Pistillate flowers—calyx and corol as in the staminate : pistils many : capsules aggregate, 1-seeded. 5. 13—(arrow-head.)

Calla. Spathe ovate becoming expanded : spadix covered with the fructification : stamens intermixed. Staminate flowers—calyx and corol 0 : anthers sessile. Pistillate flowers—calyx and corol 0 : berries 1-celled crowned with the short style. 2. 7—(water arum.)

Arum. Spathe cuculate : spadix not entirely covered with the fructification : being more or less naked above, with pistillate flowers beneath and staminate in the middle ; (sometimes a few are staminate beneath :) berry mostly 1-seeded : generally cirrose-glandular beneath. 2. 7—(Indian-turnip.)

Poterium. Staminate flowers—calyx 4-leaved : corol 4-parted : stamens 30 to 50. Pistillate flowers—calyx and corol like the staminate : pistils 2 : berry from the indurated tube of the coral. 54. 92—(burnet.) Exotic.

Quercus. Staminate flowers—calyx sub-5-cleft : stamens 5 to 10. Pistillate flowers—calyx 1-leafed, entire, scabrous, a woody cup : styles 2 to 5 : nut coriaceous, surrounded at the base by the permanent calyx. 50. 99—(oak.)

Juglans. Staminate flowers—ament imbricate : calyx a scale : corol 6-parted : filaments 4 to 18. Pistillate flowers—calyx 4-cleft superior : corol 4-cleft : styles 2 : drupe coriaceous or woody : nut sulcate. 50. 94—(hickory, walnut, butternut.)

Fagus. Staminate flowers—ament roundish: calyx 5-cleft, bellform: stamens about 12. Pistillate flowers—calyx 4-toothed, setose: germs 2: nuts 2 inclosed in the calyx becoming coriaceous echinate. 50. 99—(beach.)

Castanea. Polygamous. Staminate flowers—ament naked, linear: corol 5-petalled: stamens 10 to 20. Pistillate flowers—calyx 5 or 6-leaved, muricate: germs 3: stigmas pencil-form; nuts 3, with coriaceous putamen, inclosed in the calyx becoming echinate. 50. 99—(chesnut.)

Betula. Staminate flowers—ament imbricate, scales peltate 3-flowered: calyx a scale: stamens 10 to 12. Pistillate flowers—calyx a 2-flowered scale: seed 1, winged. 50. 99—(birch.)

Carpinus. Ament imbricate. Staminate flowers—calyx-scales ciliate: stamens 10. Pistillate flowers—calyx-scales 2-flowered: corol 3-cleft: nut ovate sulcate. 50. 99—(hornbeam.)

Ostrya. Ament imbricate. Staminate flowers—calyx a scale: filaments ramose. Pistillate flowers—ament naked: capsule inflated, imbricate, with one seed at its base. 50. 99—(hop hornbeam.)

Corylus. Staminate flowers—ament imbricate: calyx a scale: stamens about 8. Pistillate flowers—calyx 2-parted, lacerated: styles 2: nut ovate, surrounded by and included in the permanent leaf-like calyx. 50. 99—(hazlenut.)

Platanus. Ament globose. Staminate flowers—corol scarcely apparent, anthers growing around the filaments. Pistillate flowers—calyx many-leaved: style with a recurved stigma: seed roundish, crowned with the mucronate style, with egret-like hairs at the base. 50. 99—(button-wood.)

Liquidambar. Staminate flowers—ament conic, surrounded with a 4-leaved involucre: filaments numerous. Pistillate flowers—ament globose, surrounded with a 4-leaved involucre: calyx

1-leafed, pitcher-form, 2-flowered: styles 2: capsules 2, surrounded at the base by the calyx, 1-celled, many-seeded. 51. 99—(sweet-gum.)

Order XVI. Monadelphia.

Pinus. Staminate flowers—calyx 4-leaved: stamens many: anthers naked. Pistillate flowers—calyxes in strobiles or cones, scales 2-flowered: pistil 1: nut with a membranaceous wing. (Perhaps more properly a samara.) 51. 100—(pine.)

Cupressus. Staminate flowers—ament imbricate: calyx a scale: corol 0: anthers 4, sessile. Pistillate flowers—ament strobilaceous: calyx a 1-flowered scale: corol 0: stigmas 2, with concave points: nut angled. 51. 100—(white cedar.)

Thuja. Staminate flowers—ament imbricate: calyx a scale: corol 0: anthers 4. Pistillate flowers—ament a strobile: calyx a 2-flowered scale: corol 0: nut 1, surrounded with a marginal wing. 51. 100—(arbor vitae.†)

Acalypha. Staminate flowers—calyx 3 or 4-leaved: stamens 8 to 16. Pistillate flowers—calyx and corol like the staminate: styles 3, 2-cleft: capsule tricoccous, 3-celled. (Having large bracts.) 38. 96—(three seed mercury.)

Ricinus. Staminate flowers—calyx 5-parted: stamens numerous. Pistillate flowers—calyx 3-parted: styles 3, 2-cleft: capsules echinate, 3-celled, 3-seeded. 38. 96—(palma-christi, or castor oil plant.) Exotic.

Phyllanthus. Staminate flowers—calyx 5

† This tree is also called white cedar in Dr. Hosack's catalogue; to which, and to Phelps' Calendar, I generally refer, as the standards for English names; excepting in those cases, where I take the names immediately from the common people.

In the 2d edition I have added several English names from Professor Peck's catalogue.

or 6-parted : filaments united in a column ; anthers 3, and generally several barren filaments. Pistillate flowers—calyx and corol like the staminate : nectary with a 12-angled margin : styles 3 : capsule tricoccous. 38. 96—(leaf-flower.)

Momordica. Staminate flowers—calyx 5-cleft : corol 5-parted : filaments 3. Pistillate flowers—style 3-cleft : berry gourd-like and bursting elastically : seeds compressed. 34. 97—(balsam apple.)

Sicyos. Staminate flowers—calyx 5-toothed : corol 5-parted : filaments 3. Pistillate flowers—styles 3-cleft : berry gourd-like, 1-seeded. 34. 97—(single-seed cucumber.)

Cucurbita. Staminate flowers—calyx 5-toothed : corol 5-cleft : filaments 3. Pistillate flowers—calyx and corol like the staminate : pistil 3-cleft : pomaceous berry large, 3 to 5-celled : seeds thickened at the margin. 34. 97—(gourd, squash, pumpkin, water-melon.) Exotic.

Cucumis. Staminate flowers—calyx 5-toothed : corol 5-parted : filaments 3. Pistillate flowers—calyx and corol like the staminate : stigmas 3, thick, 2-parted : berry with sharpish seeds. 34. 97—(cucumber, musk-melon.)

Melothria. Staminate flowers—calyx 5-toothed : corol beliform : filaments 3. Pistillate flowers—style 1 : stigmas 3 : berry 3-celled, many-seeded. 34. 97—(creeping cucumber.)

CLASS XXI. DIOECIA.

Order II. Diandria.

Vallisneria. Staminate flowers—spathe 2-parted : spadix covered with florets : perianth 3-parted. Pistillate flowers—spathe 2-cleft, 1-flowered : perianth 3-parted, superior : corol 3-petalled : capsule 1-celled, many-seeded. (stamens 2 and 6) 1. 22—(tape-grass.)

Salix. Staminate flowers—ament cylindric :

calyx a scale, with a nectariferous gland at the base. Pistillate flowers—ament and calyx like the staminate : styles 2-cleft : capsule 1-celled, 2-valved : seed with egret-like down. 50. 99—(willow.)

Fraxinus. Perfect flowers—calyx 0, or 4-parted : corol 0, or 4-petalled : pistil 1 : samara 1-seeded with a lanceolate wing. Pistillate flowers on a distinct plant : calyx, corol and pistils same as perfect. 44. 37—(ash.)

Order III. Triandria.

Empetrum. Staminate flowers—calyx 3-parted : corol 3-petalled : stamens long. Pistillate flowers—calyx and corol as in the staminate : styles 9 : berry 9-seeded. 18. 51—(crow-berry.)

Ficus. Common receptacle fleshy enclosing the apetalous florets, either in the same or in a distinct individual. Staminate flowers—calyx 3-parted.—Pistillate flowers—calyx 5-parted : pistil 1, lateral : seed 1, covered with the closed permanent somewhat fleshy calyx. 53. 98—(fig tree.) Exotic.

* Carex.

Order IV. Tetrandria.

Hippophae. Staminate flowers—calyx 2-parted : corol 0. Pistillate flowers—calyx and corol like the staminate : style 1 : berry 1-seeded. 16. 24—(sea-buckthorn.)

Myrica. Staminate flowers—ament oblong : calyx an ovate scale : corol 0. Pistillate flowers—calyx and corol like the staminate : styles 2 : drupe or berry 1-seeded. 50. 99—(bay-berry, sweet gale.)

Broussonetia. Staminate flowers—ament cylindric : calyx 4-parted. Pistillate flowers—ament globose : calyx tubulous, 3 or 4-toothed : germ becoming fleshy, clavate, prominent : styles lateral : seed 1, covered by the calyx. 50. 99—(paper mulberry.)

Viscum. Staminate flowers—calyx 4-parted : corol 0 : anthers sessile adhering to the calyx.—Pistillate flowers—styles 0 : berry inferior 1-seeded : seed cordate ; (parasitic adhering to trees.)---(misseltoe.)

Order V. Pentandria.

Hamiltonia. Perfect flowers—calyx superior 5-cleft : corol 0 : nectary with a 5-toothed disk : stamens 5 : pistil 1 : fruit a drupe. Staminate flowers like the perfect, except in wanting the pistil---(American oil-nut.)

Zanthoxylum. Staminate flowers---calyx 5-parted : corol 0 : stamens 3 to 5. Pistillate flowers---pistils 3 to 5 : capsules equal to the number of pistils, 1-seeded. 46. 94---(prickly ash, or tooth-ache tree.)

Spinacia. Staminate flowers---calyx 5-parted : corol 0. Pistillate flowers---styles 4 : seed 1, within the indurated calyx. 12. 29---(spinach) Exotic.

Acnida. Staminate flowers---calyx 5-parted : corol 0. Pistillate flowers---calyx 3-parted : style 0 : stigmas 3, sessile : capsule 1-seeded. 53. 29---(water-hemp.)

Humulus. Staminate flowers---calyx 5-leaved : corol 0. Pistillate flowers---calxy 1-leafed, entire, oblique, spreading : styles 2 : seed 1, within the leaf-like calyx : inflorescence strobile-form. 53. 98---(hop.)

Cannabis. Staminate flowers---calyx 5-parted. Pistillate flowers---calyx 5-leaved, entire, gaping laterally : styles 2 : nut 2-valved, within the closed calyx. 53. 98---(hemp.) Exotic.

Nyssa. Perfect flowers---calyx superior, 5-parted : corol 0 : pistil 1 : fruit a drupe. Staminate flowers---stamens 10. 12. 24---(tupelo tree, or pepperidge.)

Order VI. Hexandria.

Lapathum. Calyx 3-leaved: not marked with grains: petals 3, converging: seed 1, 3-sided. (Distinguished from rumex, by always being diœcious.) 12. 28—(field-sorrel.)

Smilax. Staminate flowers--calyx 5-leaved: corol 0. Pistillate flowers--calyx and corol like the staminate: styles 3: berry 3-celled: seeds 2. 11. 12---(green briar, Jacob's ladder.)

Dioscorea. Staminate flowers----calyx 6-parted: corol 0. Pistillate flowers---styles 3: capsule 3-celled, compressed: seeds 2, membranaceous.---(Leaves generally alternate.) 11. 12---(yam-root.)

From Order VIII. Octandria, to Order XIII. Polyandria.

Populus. Staminate flowers--ament cylindric, calyx a torn scale: corol turbinate, oblique, entire. Pistillate flowers---ament, calyx and corol like the staminate: stigma 4-cleft: capsule 2-celled: seed with egret-like hairs. (Leaves having a tremulous motion.) 50. 99---(poplar, balm of gilead.

Diospyros. Staminate flowers—calyx 4 to 6-cleft, dilated: corol pitcher-form, 4 to 6-cleft: stamens 8, 16 or 29. Pistillate flowers—calyx and corol like the staminate: styles 4-cleft: berry 8 to 12-seeded. 18. 41---(date plum.)

Gleditschia. Perfect flowers---calyx 4-cleft: corol 3-petalled: pistil 1: capsule legume-like. Staminate flowers---calyx 3-leaved; corol 3-petalled. Pistillate flowers---calyx 5-leaved: corol 5-petalled. 33. 93---(honey-locust.)

Datisca. Staminate flowers---calyx 5-leaved: corol 0: anthers sessile, about 15. Pistillate flowers---calyx superior, 2-toothed: styles 3: capsules 3-angled, 3-horned, 1-celled, pervious. 54---(false-hemp.)

Menispermum. Staminate flowers---calyx 2-

leaved : petals 4 or 6 outer and 8 inner : stamens 16. Pistillate flowers---corol like the staminate : 8 barren stamens : germs 2 or 3 : berries paired, 1-seeded. 11. 77---(moon seed.)

Order XVI. Monadelphia.

Juniperus. Staminate flowers---ament ovate : calyx a scale : stamens 3. Pistillate flowers—calyx 3-parted : petals 3 : styles 3 : berry 3-seeded, consisting of the three unequal tubercles of the calyx. (Nut bony, 1-celled with balsamy glands at the base.) 51. 100—(red cedar, savin.)

Taxus. Staminate flowers—calyx about 4 bud-leaves : corol 0 : stamens many, anthers peltate, 8-cleft. Pistillate flowers—style 0 : receptacle acorn-cupform ; nut ovate. 51. 100—(yew.)

Polygamous Plants.

Some authors still retain the class Polygamia ; but I. following Persoon, have distributed the genera belonging to this class as follows :—*Andropogon* to class 3, order 2. *Holcus* to 3, 2. *Panax* to 5, 2. *Atriplex* to 5, 2. *Celtis* to 5, 2. *Veratrum* to 6, 3. *Melanthium* to 6, 3. *Acer* to 8, 1. *Mimosa* to 16, 10. *Parietaria* to 20, 4. *Fraxinus* to 21, 2. *Nyssa* to 21, 5. *Gleditschia* to 21, 13.

CLASS XXII. CRYPTOGAMIA.

Order I. Filices.

Ferns are annulated, when each capsule has a kind of chain passing around it at about right angles with the suture. When the fruit is ripe, the chain in straitening opens the capsule ; it being attached by its ends to two contiguous edges of it.

A. *With annulated capsules.*

1. *Without involucres.*

Acrostichum. Capsules numerous, covering the whole lower surface of the frond. (The fer-

tile leaves differ in shape from the barren. This genus should be examined in the young state; for the scattered fruit of other genera, by becoming confluent when old, often cover the frond.) 55. 5---(fork-fern.)

Polypodium. Capsules disposed in round scattered dots, on various parts of the lower surface of the frond. 55. 5---(polypod.)

2. *With involucres.*

Onoclea. Fruit-dots indeterminate, capsules covering the whole lower surface of the frond; involucre formed by turning in or rolling back the margin of the leaf, which opens inwards, in maturity, towards the midrib, or remains closed. (The fertile leaves are contracted and narrower than the barren ones.) 55. 5—(sensitive polypod.)

Blechnum. Capsules in uninterrupted lines running parallel to the midrib of the frond on both sides: involucre opens inwards.† (The fruit of this genus, when ripe, often covers the whole lower surface of the frond like the *acrostichum*; it must therefore be examined in the young state.) 55. 5—(Roman fern.)

Pteris. Capsules arranged in a continued line along the very margin of the frond: involucre opening inwards. (When the leaves are extremely small, the rows of capsules on opposite sides meet and cover the lower surface like the above.) 55. 5—(brake.)

Vittaria. Capsules in an uninterrupted line along the disk or margin of the frond: involucre double, one of which opens inwards, the other outwards. (Leaves always simple.) 55. 5—(ribbon fern.)

Asplenium. Capsules in lines parallel to each

† The involucre opens *inwards*, when it opens or separates, so as to leave the capsules naked on the side next to the midrib.

other, situated exactly *upon* the secondary veins of the frond: involucres opening inwards. (By the secondary veins is meant those of the middle part of the disk, not the larger ones at the margin or midrib. The parallel lines of capsules may stand obliquely with respect to the midrib, but their direction must be parallel to each other.) 55. 5—(spleen wort, walking-leaf.)

Scolopendrium. Capsules in strait or zig-zag parallel lines *between* the secondary veins (or ribs) of the frond: involucre double, opening on the top of the lines of capsules and folding down towards each side. (In the genus *asplenium*, the lines of capsules lie across the veines of the frond; but in this they are in line with the veins and attached along their sides or between them.) 55. 5—(caterpillar fern.)

Woodwardia. Capsules in oblong or oval spots arranged in regular rows on both sides of the midrib: involucre vaulted and opening inwards. (When the leaves have large segments, the capsules are arranged along the midribs of the segments also.) 55. 5—(kidney-fruit fern.)

Adiantum. Capsules disposed in oblong spots arranged along the margin of the frond: involucre is formed by turning back the margin of the frond over the capsules, and it opens inwards. (The lines of oblong spots are generally along that margin, which may be considered the end of the leaf or of the segments of the leaf.) 55. 5—(maiden-hair.)

Aspidium. Capsules in scattered roundish spots on various parts of the whole lower surface of the frond: involucre a kidney-form or round membrane, fastened to the frond in or near the center of the fruit-dot, and opening on all sides. (The involucre, when a little opened, is strictly peltate.) 55. 5—(shield-fern.)

Athyrium. (Taken from *aspidium.*) Capsules in scattered roundish or oblong spots on va-

rious parts of the whole lower surface of the frond : involucre a roundish membrane fastened to the frond at one side of the fruit-dot and opening on the other. (The involucre is generally fastened inwards and opens outwards towards the margin of the frond.) 55. 5—(snuff-box fern.)

Dicksonia. Capsules in small round scattered fruit dots at the margin of the frond : involucre double ; one part is formed of the thin margin of the frond turned over upon the fruit-dots, the other is from the frond on the inward side of the fruit-dots, each part opening opposite to where it is fastened to the frond. 55. 5—(fine-haired fern.)

Woodsia. Involucre perianth-form, with a hairy margin : capsules pedicelled included within the involucre : fruit-dots roundish, scattered. 55. 5—(flower-cup fern.)

Cheilanthes. Fruit-dots roundish, distinct, situated at the margin of the frond : involucre a roundish membrane formed by turning over the margin of the frond upon the fruit dots, and opening inwards. (The margin is always crenate, and each fruit-dot has its own involucre perfectly separate from the others.) 55. 5—(lip-fern.)

B. With capsules not annulated.

Schizaea. Capsules top-form, striate longitudinally and radiately, situated upon the back part of a narrow spike-form appendage of the frond, surrounded with or interspersed among bundles of hairs. (The appendages, bearing the capsules, are generally digitate and occupy the summit of the frond.) 55. 5—(one-sided fern.)

Osmunda. Capsules globose, pedicelled, radiate-striate or wrinkled, having a hinge at the joining of the two valves, which resembles part of the jointed ring of annulated ferns : the capsules either occupy the whole lower surface of the frond, or a panicled-raceme. (The parts of the frond occupied by the fruit are always more con-

tracted than the barren parts.) 55. 5—(flowering fern.)

Lygodium. Capsules in two series, radiate-striated or wrinkled, opening laterally, longitudinally or transversely; they are situated upon spikelets which proceed from the margin of the frond, each capsule being hid under a scale which falls off frequently in ripening. 55. 5—(fringed fern, climbing fern.)

APPENDIX TO THE ORDER FILICES.*

Pteroides.

Plants related to the ferns in their general habit; but in some degree approaching the habit of pines, umbelliferous and culmiferous plants. The young leaves are never spiral: in which particular they differ from most of the proper ferns.

Botrychium. Capsules coriaceous, globose, one-celled, smooth; they are disposed in spikes or racemes, generally open lengthwise, sometimes irregularly. 55. 5—(grape fern.)

Ophioglossum. Capsules round, 1-celled, opening transversely; they are placed on a somewhat jointed spike in two close rows. 55. 5—(adder-tongue fern.)

Psilotum. Capsules globose, 3-celled, 3-seeded, opening upwards with three pores; they are sessile on the branches and axillary. 55. 5—(naked fern.)

Lycopodium. Capsules mostly kidney-form or roundish, 2 or 4-valved opening elastically; they are placed under separate scales in a spike, or sometimes in the axils of leaves. (Very leafy, their stems being generally covered with 2, 3 or 4 rows of narrow simple entire leaves.) 55. 5—(ground pine.)

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* The genera included in this appendix, with a few of the preceding, are arranged under four new orders by modern innovators.

Equisetum. Fruit placed under peltate bodies which are arranged in whorls forming a spike-form raceme; four spiral filaments surround the seed (probably) which resembles green globules. (Fertile plants mostly leafless, the stems of all are jointed with toothed sheaths at every joint, and usually longitudinally striated and hollow.) 55. 5—(scouring rush, horsetail.)

Order II. Musci.*

A. *Capsules without a lid.*

Phascum. Capsule furnished with a calyptre, but having no lid it falls off closed. (The smallest of mosses, never half an inch high, and more commonly not the eighth of an inch, and almost sessile.) 56. 4—(earth-moss.)

B. *Capsules with a lid and without a peristome.*

Sphagnum. Calyptre breaks off transversely, leaving the lower half on the capsule: lid caducous. (Found only in swamps. Becomes reddish when old.) 56. 4—(peat-moss.)

Gymnostomum. Calyptre wholly falling off: lid caducous. 56. 4—(toothless-moss.)

C. *Capsule with a lid and furnished with a single peristome, proceeding from the outer surface of the capsule, or from both inner and outer.*

1. *Teeth fewer than* 16.

Tetraphis. Teeth 4, taking their origin from both the inner and outer surface of the capsule. 56. 4—(4-toothed moss.)

Splachnum. Teeth 8: capsule with an umbrella-form apophysis below its base. 56. 4—(umbrella moss.)

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* Mosses may be gathered whenever the capsules have arrived to their usual size. But they must be put in a closet, until the lids of the capsules become reddish-brown, before they are examined. Then the lids may be removed, and the teeth examined.

2. *Teeth always* 16, *and neither split, connected, nor in pairs.*

GRIMMIA. Calyptre smallish: peduncle terminal. 56. 4—(awl-cap moss.)

MASCHALOCARPUS. Calyptre small: peduncle axillary: stem sarmentose. 56. 4—(creeping moss.)

3. *Teeth always* 16, *and split.*

DICRANUM. Each tooth split part of the way from the tip towards the base, incurved and solid. 56. 4—(fork moss.)

TRICHOSTOMUM. Each tooth split quite down to the base, erect and filiform. 56. 4—(hair-mouth moss.)

4. *Teeth* 16, 32 *or* 64, *connected.*

POLYTRICHUM. Tips of the teeth all meet in a flat membrane, which extends over most of the mouth of the capsule: calyptre mostly composed of hair. 56. 4—(hair-cap moss.)

5. *Teeth* 16, 32, *or* 64, *in pairs.*

DIDYMODON. Capsule without any apophysis below its base. (The *splachnum*, having teeth sometimes in pairs, is best distinguished from this genus by its apophysis.) 56. 4—(double-tooth moss.)

D. *Capsule with a lid, and furnished with a single peristome proceeding only from the inner surface of the capsule.*

BARBULA. Peristome consists of twisted filaments. 56. 4—(spiral-tooth moss.)

DIPHASCUM. Teeth vein-like, lying on a conic plaited membrane: capsule inflated almost sessile upon the root. 56. 4—(bladder mouth.)

E. *Capsules with a lid, and furnished with a double peristome, the outer one consisting of* 8 *or* 16 *distinct teeth.*

1. *Inner peristome consisting of teeth or filaments not connected at their bases.*

ORTHOTRICHUM. Inner peristome consists of

8 or 16 fine hair-like filaments, vaulted inwards. 56. 4—(curve-haired moss.)

Neckera. Outer peristome consists of 16 teeth, the inner one of 16 filaments, erect; peduncles axillary. (Sarmentose.) 56. 4—(strait-haired moss.)

Timmia. Outer teeth very short; inner ones 16, long and membranaceous, in distinct pairs: peduncles terminal. 56. 4—(many-spiked moss.)

Climacium. Inner peristome consists of 16 filaments, disposed in pairs; each pair is united at top and connected below by transverse fibres: peduncles axillary. 56. 4—(tree moss.)

2. *Inner peristome consisting of teeth or filaments connected towards the base by a membrane.*

Meesia. Inner peristome consisting of 16 reticulate flat teeth: peduncle terminal. 56. 4—(net-tooth moss.)

Leskea. Outer teeth long-acuminate; inner peristome consists of a delicate membrane at the base, and upwards becoming uniform acuminate teeth: peduncle axillary. (Greatly resembles Hypnum, but the ciliae between the inner teeth of the Hypnum will distinguish it, if a very high magnifier be used.) 56. 4—(goose-neck moss.)

Bartramia. Inner peristome consists of a delicate membrane terminating in 16 acuminately divided teeth disposed in pairs: peduncles terminal, except *halleriana*. 56. 4—(bow-moss.)

Mnium. Inner peristome consists of a membrane terminating in pointed teeth which are much perforated with large holes compared with the size of the teeth, having between them fine hairs; peduncles terminal. 56. 4—(pricked-tooth moss.)

Bryum. Inner peristome consists of a membrane terminating in pointed teeth not perforated, having between them very fine delicate hairs: peduncles terminal. 56. 4—(thread moss.)

Hypnum. Inner peristome consists of a membrane terminating in pointed teeth not perforated,

having between them very fine hairs, to be seen with a good magnifier: peduncles axillary. 56. 4—(sleeping moss.)

3. *Inner peristome consisting of a membrane, or of united filaments.*

Fontinalis. Inner peristome consisting of a reticulate membrane with longitudinal fibres. 56. 4—(water-moss.)

Buxbaumia. Outer teeth extremely short and truncate; inner peristome consists of 2 or more cylinders of filaments slightly connected together, the inner cylinder being the longest: capsule oblique: peduncle radical. 56. 4—(leafless moss.)

F. *Capsule with a lid, and furnished with a double peristome, outer one consisting of* 16 *connected teeth.*

Funaria. Outer teeth oblique and connected at the tips: inner are 16 filaments lying flat: peduncles terminal. 56. 4—(rope moss, twisted stem.)

Order III. Hepaticae.†

Jungermannia. Capsules 4-valved with chain-like seed-dispersers, peduncled, arising from a bellform calyx. (An apophysis adjoins the capsule, and it has a silvery filamentous peduncle, which often grows several inches in one night. The peduncle rises from a bellform calyx, which is more permanent than the fruit. In this calyx the fruit lies concealed a while, at length it opens and discloses a small shining black globule, which rises on the silvery peduncle and bursts into 4 valves.) 57. 3—(false moss.)

Marchantia. Capsules peduncled, bursting at their summits: seeds attached to elastic fibres:

† The plants of this order have the fructification much like that of Mosses; but the frond or leafy part sometimes resembles that of Lichens.

the capsules are placed beneath umbrella-like stars or cones. (It agrees with some species of *jungermannia* in external appearance, but it is of a much firmer texture. The frond is always leafy, lobed, furnished with a strong midrib and beset beneath with villous roots. The disk of the leaf consists of a beautiful green net-work.) 57. 3—(brook liverwort.) In the spring one of the leading species sends up ovate anthers or buds on pellucid filaments from the disk of the frond. Near the middle of the summer the umbrellas appear, bearing the fruit on the rays.)

Anthoceros. Capsules horn-like, issuing from a calyx with toothed reflexed margin, covered at first with a brown villous caducous calyptre; afterwards splitting into valves and presenting the columella with the seeds attached: around the calyx, within the substance of the leaf, and in a proper involucre, are inclosed heaps of reddish minute anthers or buds. (The substance of the frond is made up of beautiful 6-sided cells, each of which is marked on the surface with a small protuberance.) 57. 3—(wax-liverwort.)

Riccia. Capsules sessile, globular, 1-celled, crowned with an appearance of withered anthers; they are lodged in the substance of the leaf, and to be discovered only by the darker colour of the place where situated. (Usually found with *lemna* in ponds and stagnant waters.) 57. 3—(floating-liverwort, fork-stems.)

Order IV. Algae.

Fucus. Germs imbedded in the gelatinous substance of the frond, aggregate: seeds produced in clustered tubercles, which burst at their summits. 57. 2—(dying seaweed.) Some species are excellent vermifuges. (See Dr. A. R. Griffin's inaugural dissertation, before the New-York college of physicians.)

Ulva. Frond membranaceous or gelatinous:

fruit in semi-transparent vesicular membranes within the substance or under the general cuticle of the frond, either solitary or clustered. 57. 2—(glue seaweed.)

Conferva. Consisting of herbaceous tubes or fibres, generally separated within by transverse partitions: seeds scattered through the joints, or contained in solitary closed tubercles attached to the tubes or fibres. 57. 2—(green hair, frog's-spittle.)

Order V. Lichenes.*

A. *Receptacle none; propago naked, scattered or aggregate.*

Lepraria†. Efflorescence sub-globular, scattered loosely over a crustaceous base, which it often covers entirely: frond crustaceous, indeterminate. 57. 2—(leprous-like lichen.‡)

Spiloma. Efflorescence in shapeless superficial masses, woolly and powdery, rigid; frond crustaceous mostly indeterminate, but sometimes bordered, thin and uniform. 57. 2—(efflorescent lichen.)

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* This order is wholly copied from the system of Acharius, translated by Doct. Smith. Acharius has since subdivided Parmelia, Baemyces, &c. by giving generic names to the sections of species.

† Sprengal considers the three first genera as the rudiments of others.

‡ Young botanists who have not been informed to what department of nature the word *lichen* applies, may be told, that the following substances are lichens. The spots on rocks and stones which are white, yellow, black, &c. sprinkled over with dots resembling fly-dirt upon window-glass. Also the whitish green patches on old fences, trees, &c. and the substance on trees of a fibrous structure and firm texture, usually called moss. It differs from moss in being more tough and hard, and generally less green.

B. *Receptacles*† *composed of a peculiar compact hardish substance, not in any manner formed out of the frond, from which it differs in colour, being often black.*

1. *Receptacles open.*

Variolaria. Receptacles seated on a thick tartarous crust, which supplies them with an accessory border; their disk is occupied with an assemblage of powdery substance: the frond is generally determinate. This genus was supposed to have no receptacle, until Dr. Smith detected the error. 57. 2—(small-pox lichen.)

Opegrapha. *Clefts* black, sessile, oblong or linear, simple, confluent or branched, strait or zigzag, bordered: their disk flat or slightly concave, naked or powdery, narrow, linear, rarely dilated: their border is of their own substance, often very narrow and scarcely perceptible, sometimes tumid, elevated, and sometimes inflexed: frond crustaceous, uniform, thin, generally indeterminate, occasionally leprous. 57. 2—(lettered lichen.)

Lecidea. *Spangles* sessile, with a flattish or convex disk: frond various, crustaceous; uniform and limited, scattered and indeterminate, leafy, membranous, or stellate. 57. 2—(spangled lichen.)

Calicium. *Puffs* turbinate, lenticular, or nearly globose: generally elevated on a rigid simple stalk of a different substance from the

† As the student will find nothing on lichens like those organs denominated the fructification of phenogamous plants, he may be told that by receptacles are here meant those specks or dots mentioned in the last note, or those saucer-form substances on the large greenish patches on fences.

The different kinds of receptacles, characterizing the genera, are enumerated under the definition of this order, at the 5th page of the introduction. They are here printed in italics. These must be examined first, in analyzing an unknown lichen.

crust: frond crustaceous, leprous or tartarous, uniform or scattered, powdery and granulated or solid and chequered, or somewhat leafy and imbricated. This genus was confounded with the *fungi*, till distinguished by Persoon. 57. 2—(fungus lichen.)

2. *Receptacles closed, at length opening.*

Gyrophora. *Buttons* superficial flattish: frond leafy, peltate, between membranous and leafy. 57. 2—(button lichen, shoe-leather.)

Bathelium. Receptacles sessile, sub-globose, opening by a deciduous lid, hollow, from 1 to 3 cells lined with seeds: frond crustaceous, indeterminate, uniform. 57. 2.

Verrucaria. *Tubercles* elevated, discharging their chained seeds by a terminal pore, or else they fall out entire: frond thin crustaceous, uniform. Very minute. 57. 2—(mite lichen.)

Endocarpon. *Hollows* hidden in the substance of the frond, each opening by a little mouth: seeds enclosed in cells: frond membranous, somewhat crustaceous, of a determinate figure; so united to the substance of the receptacles as to appear of a piece, excepting a little difference of colour. 57. 2—(hidden lichen.)

C. *Receptacles formed of the frond itself, with which it agrees in substance and colour: seeds* (excepting of the sphærophoron) *enclosed in proper cells.*

1. *Receptacles compound, either pierced or gaping.*

Thelotrema. Receptacles compound; the outer ones wart-like, elevated, of the substance of the crust, inner ones somewhat globular, with a concave disk; frond a firm, continued, indeterminate crust. 57. 2—(crust lichen.)

2. *Receptacles nearly globular, closed; at length bursting.*

Sphaerophoron. *Cellules* nearly globose, each enclosing a roundish ball of naked compact seeds, which turns to black powder, and is discharged by the torn orifice, leaving the cellule hollow and empty: frond shrubby, branched, solid, rigid, tartarous or minutely fibrous within; with a smooth cartilaginous coat. A very elegant genus resembling coral. 57. 2—(seed-ball lichen.)

Isidium. Receptacle of the seeds terminal, subdiscoid, solid, various in thickness, covered with, and shining through, the crust of the papillae of the frond, which at length bursts, and each receptacle appears coloured and partly exposed: *globules* also either terminate each papilla or are nearly sessile on the crust itself; which are coloured and finally fall out, leaving pits at the summits of the branches: frond crustaceous, leprous and tartarous, cracked, rather indeterminate; either papillary only or throwing up solid branches. Resembles sphaerophoron; but differs in having a base, terminal globules, &c. 57. 2—(coral lichen.)

3. *Receptacles orbicular, open; their border of the colour of the frond, surrounding a variously-coloured disk.*

Urceolaria. *Shields* or *spangles* cup-form, variously coloured, sunk into the substance of the crust, or of its fragments or warts: disk concave, rarely becoming flattish by age, but never elevated above the crust, proper border often scarcely manifest, of the colour of the disk; the accessory border sometimes formed of the crust elevated like a ring surrounding the disk of each shield: frond crustaceous, tartarous, uniform, determinate, chequered or cracked, rarely figured or lobate. Often found on stones, &c. and some species are inseperable from the stones on which they grow. 57. 2—(pitcher-shield lichen.)

PARMELIA. *Shields* superficial or elevated, thick or sub-membranous, flattish, convex or concave, crowned with a free accessory border: frond various, crustaceous, leafy, branched or laciniated, cartilaginous, membranous or gelatinous. A vast genus. One of its best characters is that the shield has no border of its own substance; but always has an accessary one of the substance of the crust. 57. 2—(shield lichen.)

4. *Receptacles flattened, nearly destitute of a border; their upper side entirely covered with a thin seed-bearing disk, of considerable solidity at the surface.*

STICTA. *Shields* on the upper side of the frond, sessile, close-pressed, orbicular, membranaceous; their disk flat, rarely somewhat convex; their border accessory, thin, entire, free, slightly-tumid, rarely fringed, of the colour of the frond: pits among the down of the under side, scattered, sessile, minute, coloured: their disk roundish, powdery; border elevated, a little inflated, entire or jagged, sometimes obliterated: frond leafy, membranous, or in some measure leathery, lobed or jagged, downy or shaggy beneath. The pits on the back of the frond form the best of its characters. 57. 2—(pit-back lichen.)

PELTIDEA. *Targets* closely attached to the frond about the margin on the upper or under side, rarely lateral or towards the middle, each consisting entirely of a flattish (rarely concave) coloured disk: border accessory, very thin and scarcely discernible, united with the frond and of the same colour: frond rather leathery, with downy veins and fibres beneath, rarely naked; the circumference lobed, its barren lobes depressed, fertile ones elongated, ascending, naked at the base. Best distinguished from the stieta by having prominent veins or ribs underneath, and no pits. 57. 2—(target lichen.)

CETRARIA. *Targets* shield-like, thickish, flat, close-pressed, sessile, near the margin ; their circumference loose, rounded, deformed or wavy, disk coloured, slightly convex: border accessory, very narrow, entire or crenate, of the colour of the frond : frond leafy, membranous or sub-cartilaginous, rigid, smooth and naked on both sides ; sometimes cellular or pitted, lobed and jagged ; often crisped at the edges. The receptacles are rather between shields and targets ; well distinguished from Peltidea by its smooth, polished, membranous, sub-rigid frond. 57. 2—(iceland lichen.)

CORNICULARIA. *Orbs* shield-like, terminal, peltate, thickish, cartilaginous, orbicular, flat ; at length rather convex, uneven, irregular : disk generally of the colour of the frond ; border scarcely any, except in a young state a straight accessory one, entire, naked, or radiated, at length reflexed : frond cartilaginous, rigid, smooth, rather solid, spongy within, of a shrubby tufted branched habit, the branches acute. Resembles the Parmelia in the frond and the Usnea in the fruit. 57. 2—(horned lichen.)

USNEA. *Orbs* sub-coriaceous, flattened, peltate, naked and smooth on both sides, mostly much dilated ; disk first concave, then flat, even, subsequently rather convex and cracked, or warty, scarcely coloured ; border either none or accessory, which is entire or toothed in the circumference, very often radiated : *knobs* on the same, or on a different plant, which are sessile, lateral, scattered ; at first shield-like and sometimes in a manner bordered, finally convex and warty, coloured. This is the filamentous lichen, tapering, more or less jointed, having a central elastic medullary thread. It is sometimes called tree-moss. 57. 2—(filamentous lichen, or tree-moss.)

5. *Receptacles convex, more or less globose, clothed with a seed-bearing layer, or disk, sessile on the branches, papillary processes, or peculiar stalks of the frond; terminal and permanent.*

STEREOCAULON. *Knobs* sub-turbinate, at first furnished with a proper border, then globose, without stalks, simple or clustered, coloured, permanent; disk at first flat and small, but gradually occupying the whole; the border of the same uninterrupted substance and colour, entire, at length obliterated: frond solid, almost woody, caulescent, erect, branched, mostly clothed with scales, rough and fibrous. 57. 2—(knobbed lichen.)

BAEMYCES. *Knobs* capitate, nearly globose, with reflexed and scarcely bordered edges, terminating their own proper fruit stalks, simple or clustered, coloured, permanent: disk properly none, the whole globose surface being covered with the thin, solid, seed-bearing coat; border none: frond either subcrustaceous, softish, granulated, indeterminate, rarely figured; or consisting of a cartilaginous, leafy and lobed crust: fruit stalks elongated out of the very substance of the frond, simple or branched, tubular or nearly solid, dilated or tapering upwards, sometimes barren. 57. 2—(scarlet-mouth lichen, brittle moss.)

ORDER VI. FUNGI.

AGARICUS. Fungus with gills underneath. 58. 1—(mushroom, toadstool.)

MERULIUS. Fungus with veins underneath. 58. 1—(veined fungus.)

BOLETUS. Fungus with pores underneath. 58. 1—(touchwood.)

THAELAEPHORA. Fungus warty underneath, the substance corky. 58. 1—(pink fungus.)

HYDNUM. Fungus prickly underneath. 58. 1. —(prickly toadstool, paper punk.)

MORELLUS.* Fungus reticulate or cellular above, smooth underneath. 58. 1—(morel.)

HELVELLA. Fungus turbinate, plaited, wrinkled, inflated, deformed or concave, smooth, elastically ejecting seeds from the upper surface. 58. 1—(smooth-cup fungus.)

CLAVARIA. Fungus club-form, erect, elongated, simple or branched: seeds dispersed over the whole surface, or collected in tubercles opening at top. 58. 1—(club-fungus.)

CLATHRUS. Fungus roundish, cancellated with fleshy branches interwoven with each other. 58. 1—(latticed fungus.)

PEZIZA. Fungus concave above; hemispherical or beliform; seeds contained in the cup. 58. 1—(dish fungus.)

CYATHUS. Fungus bellform or cylindric, bearing lentiform capsules within. 58. 1—(bird-nest fungus, tunnel fungus.)

LYCOPERDON. Fungus becoming powdery and fibrous within: seeds attached internally to the fibres. 58. 1—(puff ball.)

FULIGO. Fungus with a cellular-fibrous bark; the fibres penetrating in a reticulate manner through a fibrous mass. 58. 1—(soot fungus.)

STEMONITIS. Fungus covered with a fugaceous or membranaceous bark, filled with seminiferous fibres elastically expanding themselves. 58.1—(brittle-bark puff ball.)

AECIDIUM. Fungus furnished with membranaceous cases, glabrous on both sides, filled with naked seeds not cohering. 58. 1—(cased fungus.)

SPHAERIA. Fungus furnished with cases filled with roundish naked gelatinous seeds. 58. 1—(globule fungus.)

SCLEROTIUM. Fungus quite simple, globular-oblong, tough, hardish, gaping a little at length in the centre, covered with an inseparable bark

* A substitute for a vile name.

never opening above. 58. 1—(barked fungus.)

Uredo. Fungus parasitical, consisting of a mealy powder, destitute of a case, growing from under the cuticles of leaves and stems, bursting at last, with an even margin. 58. 1—(blight, or grain-rust.)

Tubercularia. Fungus gelatinous: cup tubercled: stalk thick, filled, closely appressed, bearing the seeds on the upper surface. 58. 1—(tubercle fungus.)

Mucor. Fungus fugacious, heads at first semi-transparent, then becoming opake, fixed to simple or branched stalks. 58. 1—(common mould.)

Monila. Consisting of moniliform filaments clustered into a head. 58. 1—(bead fungus.)

Xylostroma. Fungus leathery, expanded, deformed, penetrating, smooth, even: seeds among the fibres, globular minute. 58. 1—(leather punk, or oak leather.)

END OF PART I.

ABBREVIATIONS.

Localities.

H. Harvard college. Plants which grow in the vicinity of Boston.

Y. Yale college. Plants which grow in the vicinity of New-Haven.

C. Columbia college. Plants which grow about New-York.

W. Williams college. Plants which grow in the vicinity of that college.

N. Northampton. Plants which grow along Connecticut river from Northampton to Deerfield. For these localities I am indebted to Dr. D. Hunt, and Drs. Williams and Cooly of Deerfield.

A. Albany. Plants growing in the vicinity of Albany. For these localities I am indebted to Dr. Beck, Mr. J. G. Tracy and Mr. Edwin James.

P. Pennsylvania.

O. Ommibus locis. Plants more or less common to all the above places.

Colours of Corols.

r. red—p. purple—y. yellow—w. white—b. blue—g. green.

Time of Flowering.

Ap. April—M. May—J. June—Ju. July—Au. August—S. September—Oc. October.

Duration, &c.

⊙. annual—♂. biennial—♃. perennial—ħ. woody.

The number annexed to the generic name refers to the page, where the generic character is given. By this arrangement, all the purposes of an index are answered.

It is not to be understood by students, that plants referred to any of the above places may not be found in places very distant from them. But it will be useful in collecting plants, to know what species have been found in the latitude of the place where plants are sought, or in places in other respects resembling it.

SPECIES OF PLANTS

IN THE

NORTHERN AND MIDDLE STATES.

A

Acalypha. Page 96.

virginica (three-seed mercury, O. g. Au. ☺.) leaves lance-ovate longer than the petioles. The large calyx is involucre-like, and resembles that of the corylus americana.

Acer, 54.

rubrum (soft maple, red maple. O. r. Ap. ♄.) leaves 5-lobed, unequally sub-dentate, glaucous beneath : flowers in sessile umbels. Rarely dioecious. Germs red.

dasycarpum (silver maple. P. r-y. ♄.) leaves 5-lobed, acuminate, pubescent beneath : flowers dioecious, glomerate : germ tomentose.

saccharinum (sugar maple. O. y-r. M. ♄.) leaves 5-parted, palmate, sinuate, acuminate-toothed, pubescent beneath. Polygamous.

striatum (false dogwood, striped maple bush, indian tobacco. O. g. M. ♄.) stem marked with white longitudinal lines : leaves 3-lobed, acuminate, serrate : racemes pendant : petals oval.

spicatum (mountain maple-bush. W. y. P. C. g. M. ♄.) leaves 3-lobed and 5-lobed, acuminate,

unequally serrate, downy beneath : racemes erect, spike-like : petals linear.

negundo (ash-leaf maple, box elder. P. w. Ap. ♄.) leaves unequally pinnate : flowers dioecious.

nigrum (sweet tree. C. P. N. Ap. ♄.) leaves palmate-5-lobed, cordate with the sinuse closed, downy beneath : flowers corymbed : capsules sub-globose.

Achillaea, 87.

millefolium (yarrow. O. w. J. 4.) leaves 2-pinnate, sub-glabrous, divisions of the leafets linear, toothed.

Acnida, 99.

cannabina (water hemp. Y. P. C. H. Ju. ☺.) leaves lanceolate : capsules smoothish, acute-angled.

rursocarpa (P. Ju. ☺.) leaves lance-oval : capsules obtuse-angled, rugose.

Aconitum, 65.

napellus (monk's hood. E. b. J. 4.) flower cowled ; spur strait, obtuse ; lip lanceolate, bifid : leaves 5-parted.

uncinatum (wolf-bane. P. b. S. 4.) stem zigzag : flowers with about 5-styles : leaves many-lobed.

Acorus, 51.

calamus (sweet-flag. O. y. J. 4.) spike projecting from the side of a sword-form leaf.

Acrostichum, 101.

aureum (fork-fern. Ju. 4.) frond pinnate with alternate leafets, fruit on the upper leafets.

Actaea, 64.

rubra (bane-berry. O. w. M. ♃.) petals acute: pedicels of the raceme less than the general peduncle. Big. MS. Berries red.

alba (necklace weed. O. w. M. ♃.) petals truncate: pedicels of the raceme as large as the general peduncle. Big. MS. Berries white. There has been much confusion respecting these two species. Dr. Bigelow has at length very satisfactorily defined them.

Adiantum, 103.

pedatum, (maidenhair. O. J. ♃.) frond pedate branches pinnate, leafets halved.

Adonis, 67.

autumnalis (pheasant's eye. E. Au. ☉.) flowers 5 to 8-petalled; fruit sub-cylindric.

Æcidium, 118.

cornutum, (cased fungus) clustered: yellow: cases long, curved, olive-grey.

rhamni, clustered: cylindric: rosy: seeds orange.

cancellatum, clustered: opening laterally, entire at top.

tussilaginis, clustered: rather prominent: yellow: seed orange.

anemones, solitary: scattered: nearly globular.

Æschynomene, 81.

hispida (false sensitive plant. P. y. Au. ☉.) stem herbaceous, hispid: leaves linear obtuse: racemes simple: loments hispid.

Æsculus, 53.

hippocastanum (horse chesnut. E. J. ♄.) leaves digitate, divisions about 5 : corol 5-petalled.

Agaricus, 117.

A. *Stem with a ring, without a curtain.*

procerus, widely conic, bossed, white brown : gills white, uniform, fixed to a collar : stem scaly.

campestris (eatable mushroom) convex, whitish-brown, spotted : gills pink, becoming liver-colour : stem white.

B. *Stem without ring or wrapper.*

violaceus, convex, purplish-brown, inflected at the edge : gills purple : stem purplish, bulbous.

radicatus, greenish or brownish, obtusely conical : gills white, few : stem brown, tapering upwards.

flavidus, yellow, obtusely conic : gills deep buff : stem pale yellow, brownish at the base.

fascicularis, yellow and orange : gills brown-green : stem yellow, long, crooked.

C. *Exuding a juice when crushed.*

coccineus, scarlet, conic, small : stem long, solid, a little crooked, woolly at the base.

piperatus, dirty-yellow-white, woolly, depressed in the center : gills pale pinky-red : stem pale yellow : juice milky, peppery.

D. *Smooth, membranous or fleshy : cap and gills coriaceous.*

castaneus, smooth, silky, chesnut : gills tender, red-brown : stem linear, white, hollow, elastic.

velutipes, clustered, reddish-buff : gills pale yellow, 8 in a set : stem yellow and dark brown, velvety below.

coriaceus, depressed-convex, fleshy-ochre : gills pale brown, thicker above.

semiglobatus, greenish-yellow, hemispherical : gills brown, mottled : stem pale buff.

clavus, pale orange or scarlet, depressed-convex : gills white, in pairs : stem pale orange, slender, solid.

campanella, conic-convex, bossed, glabrous, striate, saffron : gills pale-sulphur colour : stem slender, saffron.

E. *Smooth, tender, mostly pellucid, with the cap striate and plaited ; generally of an uniform colour.*

gracilis, somewhat conic elastic, dry : gills few, trifid, red : stem very long, slender.

confertus, white, acutely conic, downy : gills brownish-white, thin uniform : stem white, tapering upwards.

rotula, hemispheric, white, crenate : gills fixed to a collar surrounding the stem : stem black at the bottom, often branched.

conicus, bellform, acute, shining, livid, striate : gills white : stem hollow, grey.

papyraceus, white, hemispherical, membranous : gills 3 in a set, blackish when old : stem hollow.

narcoticus, convex with forked plaits : gills grey, in pairs : stem subulate, white.

F. *Cap opake, conic : gills sooty when old, and dissolving into a black sanies : stem hollow.*

cinereus, warty-grey, striate, brown in the centre : gills grey, not reaching the stem : stem white.

G. *Stemless.*

mollis, deformed, red buff : gills in pairs reddish-yellow.

[These species were chiefly taken from Muhlenberg.]

Agave, 49.

virginica, (agave. P. y-g. S. ♃.) stemless : leaves with cartilaginous serratures, scape very simple.

Agrimonia, 61.

eupatoria (agrimony. O. y. Au. ♃.) cauline leaves interruptedly pinnate, the terminal one petioled : fruit hispid.

parviflora (dotted agrimony. P. y. Au. ♃.) cauline leaves pinnate ; leafets mostly lanceolate : terminal ones sessile, petals one and a half the length of the calyx.

Agrostemma, 59.

githago, (cockle. O. r. J. ☉.) hirsute : calyx and corol about equal ; petals entire.

coronaria (rose campion. E. Au. ♄.) tomentose : leaves lance-ovate : petals emarginate.

Agrostis, 80.

1. *Awned.*

spicaventi (bent-grass. P. J. ☉.) a very long straight stiff beard, or awn, upon the exterior petal : panicle spreading. Naturalized.

tenuiflora (P. Au. ♃.) panicles very simple with appressed branches : corol awned, and the awn longer than the flower.

diffusa (P. Au. ♃.) branches diffused and erect : leaves lanceolate, sub-perforate : corol glumes sub-pubescent at the base : one valve with a short strait awn.

sericea (C. P. J. ♃.) leaves terete-filiform very long : panicle capillary, very slender : corol small, and the calyx but one third as long : awns strait naked.

filiformis (P. S. ♃.) panicle contracted, filiform,

becoming purple ; peduncles and pedicels scabrous : calyx 2-valved, equal, 1-flowered : corol equalling the calyx.

stricta (New-England. J. ♃.) panicles elongated stiff : corols less than the calyx : awn from the base of the petal, longer than the twisted flower.

setosa (P. S. ♃.) culm erect, sending out shoots from the base : stipules none : panicle contracted, cylindric : calyx awned : corol awnless.

sobolifera (P. C. S. ♃.) culm erect sending off shoots from the base : leaves 5-nerved : stipules none : sheathes gaping, glabrous : calyx valves acuminate, carinate.

juncea (C. P. Ju. ♃.) panicle oblong-pyramidal : flowers awnless ; the extreme valves half as large : leaves stiffly erect, rigid with convolute bristles.

2. Without awns.

involuta (P. C. Oc. ♃.) leaves long, filiform at the apex and recurved, rough, upper one strait : stipules obsolete.

vulgaris (redtop. O. Ju. ♃.) panicle spreading : branches divergent capillary : calyx equal ; petal within, half as long, retuse.

clandestina (P. S. ♃.) leaves glaucous, very long, rigid, with rough margins : stipule very small or none ; mouth of the sheath hairy : panicle concealed, often sooty, and spike-form : corol twice as long as the calyx, spotted.

virginica (P. C. S.) culm geniculate and branching at the base : leaves hairy at the base ; stipule 0 ; mouth of the sheath hairy around the culm : panicles lateral and terminal, spike-form, lower ones concealed : seed transparent.

glauca (P. New-England. J. ♃.) leaves glaucous, keel white : stipule white split : panicle terminal crouded : lower branches whorled in fives.

alba (white top. O. Ju. ♃.) panicle lax : culm

rooting at the lower joints : calyx valves equal, awnless, keels rough.

mexicana (P. J. ♃.) panicle oblong heaped together : calyx and corol acuminate, subequal, awnless.

lateriflora (C. P. J. ♃.) panicles lateral and terminal compact : flowers awnless, valves very acute, interior greater, bearded at the base ; leaves short and flat.

pungens (C. J. ♃.) panicle contracted, spike-form : leaves involute rigid, pungent, upper ones obliquely opposite : culm ramose.

AIRA, 31.

melicoides (hair-grass. P. C. Ju. ♃.) panicle small compact sub-racemed : glume common, the partial ones rather larger, linear-lanceolate awnless : corols villose at the base ; there is but the rudiment of a third flower : leaves flat glabrous : culm erect.

pumila (dwarf hair-grass. P. J. ♃.) panicle few-flowered, level-top ; pedicels short : corol awnless, obtuse, twice as long as calyx : culm erect, of the length of the leaves. About one inch high.

obtusata (P. C. J.) panicle compressed into an oblong raceme of dense flowers : corol awnless compressed at top : one valve of the glume narrow-linear acute, another broad obovate round-obtuse : leaves flat : culm erect slender.

cespitosa (P. New-England. J. ♃.) panicle spreading : petals awned, villose at the base : awns strait and short. A variety has subbristleform leaves.

flexuosa (W. P. C. J. ♃.) panicle spreading trichotomous : peduncle flexuous : awn geniculate : leaves bristle-form : culm nakedish.

mollis (P. C. M. ♃.) leaves with soft hairs : stipule short, retuse, many-cleft ; sheaths pubes-

cent: panicle spreading, sub-simple: calyx with one valve broad, 3-nerved; the other lanceolate, acute.

pallens (P. C. J. & S. 2.) leaves lance-linear glabrous with glabrous joints: stipules retuse ciliate: panicle contracted nodding: corol with 2 punctate valves; awn below the apex contorted.

precox (C. M. ☉.) leaves bristle-form: sheath angular: flowers in panicled-spikes: florets awned at the base.

purpurea (C. Au.) panicle scattered, purple: flowers awned; glumes, one bifid awned at the nerve, the other entire, plumose, concave: leaves subulate: culm erect. Grows on the seashore. Torrey.

Aletris, 50.

farinosa (false aloe, unicorn-root. Y. y. 2.) stemless: leaves linear-lanceolate, withering at the tips: scape with alternate flowers. This plant grows plentifully in Brimfield, (Mass.) Here the inhabitants use the root as a tonic, which at the same time serves as a moderate cathartic. The root is intensely bitter.

Alisma, 53.

plantago (water plantain. O. w. Ju. 2.) leaves ovate acute: fruit obtusely 3-cornered. A trivialis. Pursh.

parviflora (C. P. Ju. 2.) leaves oval, subcordate, abruptly-acuminate, 5-nerved: umbels in whorled panicles, pedicelled, filiform.

subulata (C. P. Au. ☉.) leaves linear-subulate,

Allium, 49.

porrum (leek. E. Ju. 2.) stem flat-leaved, um-

belliferous: stamens tricuspidate: leaves sheathing at the base.

sativum (garlic. E. Ju. 4.) stem flat-leaved, bulb-bearing; bulb compound: stamens tricuspidate.

vineale (field garlic. C. P. p. J. 4.) stem terete-leaved, bulb-bearing: stamens tricuspidate.

oleraceum (striped onion. E. 4.) stem terete-leaved, bulb-bearing: leaves scabrous, semiterete, sulcate beneath: stamens simple.

ascalonicum (shallot. E. Ju. 4.) scape naked terete: leaves subulate: umbels globose: stamens tricuspidate.

triflorum (mountain leek. P. M. 4.) scape naked, terete, shorter than the leaves; leaves lanceolate nerved: umbels few-flowered.

canadense (meadow garlic. P. Y. A. r. M. 4.) scape naked terete: leaves linear: little heads bulb-bearing.

cepa (garden onion. E. Ju. 4.) scape naked, swelling towards the base, longer than the terete leaves.

tricoccum (three-seed leek. P. W. Ju. 4.) scape naked, semiterete: leaves lance-oblong, flat, glabrous: umbel globular.

fistulosum (welch onion. E. 4.) scape naked, equalling the terete ventricose leaves.

schoenoprasum (cives. E. Ju. 4.) scape naked, equalling the leaves which are terete-filiform.

Alnus, 92.

incana (P. ħ.) leaves oblong acute, pubescent beneath; axils of the veins naked: stipules lanceolate.

undulata (waved alder. Muh. says it grows in N. England. ħ.) leaves oblong, acute, rounded at the base: petioles and veins hairy beneath: axils of the veins naked: stipules ovate-oblong.

serrulata (alder. O. r-g. Ap. ♄.) leaves obovate, acuminate; veins and their axils hairy: stipules oval, obtuse.
glutinosa (Canada. Ap. ♄.) leaves round-wedge-form, obtuse, glutinous: axils of the veins downy.

Alopecurus, 30.

pratensis (meadow-grass, foxtail. P. C. J. ♃.) culm erect: glume villose; corol beardless.
geniculatus (floating foxtail. W. H. C. Ju. ♃.) culm spiked and geniculate: corol beardless.

Alsine, 47.

media (chickweed. O. w. M. ♃.) stem with alternate lines of hairs on the sides: petals 2-parted; leaves heart-ovate.

Althaea, 77.

officinalis (marsh mallows. E. ♃.) leaves downy, oblong-ovate: obsoletely 3-lobed, toothed.
rosea (hollyhock. E. ☉.) stem erect: leaves rough, heart-form, 5 to 7-angled, crenate.
ficifolia (fig-hollyhock. E. ☉.) leaves 7-lobed, subpalmate, obtuse.

Alyssum, 73.

saxatile (madwort, basket of gold, E. ♄.) stem woody, panicled: leaves lanceolate, very soft spreading.
hyperboreum (Canada.) stem herbaceous: leaves hoary, toothed: stamens 4, 2-forked.
sat vum (P. v. J. ☉.) stem erect: leaves lanceolate, toothed, clasping, alternate: flowers corymbed.
incanum (E. ♃. & ☉.) stem erect: leaves lanceolate, entire, hoary: flowers corymbed, petals 2-cleft.

Amaranthus, 93.

albus (white coxcomb. P. g-w. Au. ☺.) glomerules axillary triandrous: leaves obovate retuse: stem 4-cornered simple. Common garden weed.

graecizans (P. Au. ☺.) glomerules axillary triandrous: flowers 3-cleft: leaves obovate emarginate: stem teretish branching.

melancholicus (love-lies-bleeding. E. r. ☺.) glomerules axillary peduncled roundish: leaves ovate-lanceolate coloured.

tricolor (three-coloured coxcomb. E. Ju. ☺.) glomerules sessile: leaves oblong-lanceolate coloured.

lividus (lead amaranth. E. J. ☺.) glomerules triandrous sub-spiked roundish: leaves eliptic retuse: stem erect.

oleraceus (pot amaranth. Y. W. A. C. Ju. ☺.) glomerules axillary branching: leaves wrinkled, oblong, very obtuse, emarginate. Sometimes the flowers are pentandrous.

hybridus (P. Y. Ju. ☺.) racemes pentandrous doubly-compound, heaped together, erect: leaves ovate-lanceolate.

paniculatus (P. Ju. ☺.) racemes pentandrous triply-compound: branches spreading pubescent: leaves ovate-lanceolate.

retroflexus (rough amaranth. P. W. H. Au. ☺.) racemes pentandrous, triply-compound, compact, erect: branches pubescent: leaves ovate undulate.

hypochondriacus (spleen amaranth. P. Au. ☺.) racemes pentandrous, compound, compact, erect: leaves oblong-lanceolate, mucronate. Leaves red. (false prince's feather.)

spinosus (P. Au. ☺.) racemes pentandrous, terminal, compound: axils spinose.

Amaryllus, 49.

atamasco (atamasco lily. P. w. J. 4.) spathe 2-cleft, acute : flower pedicelled : corol bellform subequal, erect : stamens declined.

formosissima (jacobea. E. 4.) spathe 1-flowered : corol ringent-like : petals declined.

Ambrosia, 93.

trifida (P. N. C. A. S. ☉.) bristly, rough : leaves 3-lobed serrate, lobes oval lanceolate acuminate : fruit 6-spined beneath the apex. From 5 to 8 feet high.

integrifolia (P. Ju. ☉.) leaves ovate sessile accuminate serrate, bristly on both sides, ciliate at the base : racemes terminal, sometimes ternate. Flowers very inconspicuous.

clatior (hogweed. O. S. ☉.) leaves doubly-pinnatifid smoothish : petioles long ciliated : racemes terminal, panicled : stem wand-like.

artemisifolia (P. S. ☉.) leaves doubly-pinnatifid, hoary beneath, at the summit pinnatifid : racemes terminal in threes : branches level-topped.

paniculata (P. J. ☉.) leaves glabrous doubly pinnatifid, at the pinnatifid summit : racemes terminal solitary : branches level topped.

heterophylla (P. S. ☉.) cauline leaves pinnatifid sub-toothed petioled ; on the upper branches lanceolate sessile : petioles long-ciliate : racemes terminal solitary : stem panicled.

Ammannia, 35.

humillis (tooth-cup. P. p. Au.) procumbent : leaves lanceolate, narrower downwards : flowers all solitary.

Ammi, 45.

capillaceum (bishop-weed. Y. w. Au.) leaves all capillary, many-cleft: seed glabrous.

Amorpha, 78.

fruticosa (false indigo. P. Ju. ♄.) calyx with 4-teeth acute, and one accuminate.

Ampelopsis, 42.

quinquefolia (false grape, O. w. Ju. ♄.) leaves in fives, toothed.

Amsonia, 43.

latifolia (beard throat. b. M. 4.) stem glabrous: leaves lance-oval, upper ones acuminate.—Southern states.

Amygdalus, 62.

persica (peach. E. r. M. ♄.) serratures of the leaves all acute, flowers sessile, solitary.

nana, (flowering almond. E. ♄. leaves ovate, tapering to the base, sharply serrate.

Anagallis, 38.

arvensis (red chickweed, scarlet pimpernell. Y. C. P. H. r. J. ☉.) stem spreading naked: petals entire flat, with hairs at the margin.

Anchusa, 37.

officinalis (buglos. E. y. 4.) leaves lanceolate: spikes imbricate, one-sided: bracts ovate.

ANDROMEDA, 57.

hypnoides (moss bush. Whitehills. Au. ♄.) leaves imbricate subulate glabrous: peduncles solitary terminal 1-flowered: corol nodding globose bellform. Small, creeping.

mariana (P. J. ♄.) leaves oval sub-acute at both ends, glabrous leathery paler beneath: branches flower bearing, almost leafless: peduncles fascicled: corol ovate-cylindric: calyx leafy: anthers beardless: capsule ovate and resembling the form of a pine-apple. One variety has narrow lanceolate leaves.

pulverulenta (dust-leaf. E. ♄.) white dust-like substance, scattered over the leaves and stem; leaves alternate.

polifolia (Plainfield and Goshen. Mass. r-w. M. ♄.) leaves linear-lanceolate convex revolute, white-glaucous beneath and hoary-glaucous above: flowers aggregate terminal; corol sub-globose: anthers bearded towards the top. One foot high.

arborea (sorrel tree. P. w. Ju. ♄.) branches terete: leaves oblong acuminate mucronate-serrate glabrous: panicles terminal many-spiked: corol ovate-cylindric pubescent: anthers linear beardless. About 40 feet high, with sour leaves.

paniculata (white bush. W. Y. A. C. H. w. J. ♄.) pubescent: leaves obovate-lanceolate acute sub-entire: branches flower-bearing terminal panicled nakedish: glomerules peduncled: corol sub-globular pubescent: anthers obtuse beardless. A shrub running into several varieties—flowers small.

racemosa (P. C. w. J. ♄.) leaves oval-lanceolate acute serrulate membranaceous glabrous: spikes terminal, one-way, elongated, simple or branched: bracts linear acute: corol cylindric:

calyx acute with bracts at the base: anthers doubly 4-bearded at the apex. A middling sized shrub, odoriferous.

axillaris (E. w. J. ♄.) leaves oblong-oval, base acute short acuminate, cartilaginous-serrate bright-glabrous leathery: racemes spiked axillary sessile: bracts scale-like: flowers crowded on all sides: corol ovate-cylindric: anthers beardless. A variety has long linear-lanceolate leaves.

acuminata (pipe-stem. Southern states. w-r. M. ♄.) very glabrous: leaves ovate-lanceolate; upwards they gradually become narrow acuminate entire or unequally serrate, glabrous shining net-veined leathery: racemes axillary very short corymbed nakedish; flowers pedicelled nodding: corols cylindric-ovate, anthers beardless, gibbous behind. Stem hollow.

calyculata (leather leaf. Y. C. H. A. P. N. w. M. ♄.) leaves lanceolate-oblong sub-serrulate, with scaly dots, rust-coloured beneath: racemes terminal leafy flowers turned one way: calyx with 2 broad-ovate acuminate bracts: corol oblong-cylindric.

ligustrina (P. w. J. ♄.) racemes naked: stem shruby: leaves crenulate, oblong: racemes numerous, alternate.

Andropogon, 33.

nutans (beard grass. Y. W. P. S. ♃.) panicles branching compact nodding: flowers double-bearded: calyx bristly: perfect flowers sessile, staminate pedicelled caducous.

macrourus (Indian grass. P. S. ♃.) sheaths villose at the margin: panicles lateral with many fascicular spikes; flowers monandrous, beard 4 or 5-fold of the length of the glume; anterior valves glabrous.

dissitiflorus (P. S. 4.) sheaths glabrous; culm erect: spikes lateral distant: flowers monandrous; awns long strait; interior valves glabrous.

purpurascens (P. Au. 4.) spikes simple peduncled, double, close-panicled; flowers double, the perfect is sessile lanceolate bearded, the neutral is pedicelled bearded; rachis ciliate.

furcatus (forked spike. W. P. Au. 4.) spikes digitate, partly in fours, flowers double; the perfect ones sessile awned, the staminate ones beardless pedicelled: rachis hairy.

ambiguus (C. 4.) leaves clasping sub-cordate lanceolate: panicle with branches bristly the whole length, simple erect: glumes solitary alternate 1-flowered: corol not bristly, long-awned, triandrous; florets extended by an awn-form increase.

Anemone, 66.

hortensis (garden anemone. E.) radical leaves digitate, divisions 3-cleft; cauline ones ternate, lanceolate, connate, sub-divided: seed woolly.

virginiana (wind flower. P. g-w. J. 4.) stem dichotomous: leaves thrice ternate, upper ones opposite, leafets gash-lobate and serrate acute: peduncles solitary, 1-flowered elongated: seed oblong, headed woolly mucronate.

aconitifolia (P. w. J. 4.) stem dichotomous: radical leaves palmate; cauline leaves sessile clasping 3-cleft, the lower ones ternate, with the lobes acute-lanceolate gash-serrate: peduncles solitary 1-flowered: seed head-globose naked subulate-beaked. Flowers large.

dichotoma (Can. w-r. M. 4.) stem dichotomous: leaves all cauline opposite clasping 3-cleft, lobes wedge-lanceolate with the upper ones gash-serrate: peduncles solitary 1-flowered: seed with a globose head naked recurved-mucronate.

nemorosa (low anemone. H. W. Y. r-w. M. 4.) stem 1-flowered: cauline leaves thrice ternate, leafets wedge-form, gash-lobed, toothed acute: corol 5-6-petalled: seeds ovate with a short style hooked. A variety, *quinquefolia*, has lateral leaves deeply 2-cleft.

lancifolia (P. w. M. 4.) stem 1-flowered: leaves cauline thrice ternate: leafets lanceolate crenate-toothed: corol 5-petalled: seeds ovate with a short style hooked.

thalictroides (rue anemone. A. Y. H. C. P. w. 4.) umbels involucred: radical leaves twice ternate, leafets sub-cordate 3-toothed: involucre 6-leaved, leafets petioled uniform: umbel few flowered: seed naked striate: root tuberous. A variety, *uniflora*, has a 1-flowered involucre.

Anemone. See Hepatica.

Anethum, 46.

graveolens (dill. E.) fruit compressed: plant annual.

foeniculum (fennel. E.) fruit ovate: plant perennial.

Angelica, 45.

archangelica (archangel. E. ♃.) the odd terminal leafet lobed.

atropurpurea (P. Can. g. J. 4.) leaves compound, leafets oblong sublobate serrate sub-sessile, the last pair united at the base, the terminal petioled. 3 to 6 feet high, root fragrant.

triquinata (angelica. O. w. J. 4.) petiole 3-parted, partitions pinnate, 5-leaved; leafets gash-toothed; the odd terminal one sessile rhombic, lateral ones decursive.

lucida (nondo. w. J. 4.) leafets equal ovate gash-serrate.

Annona. 66.

glabra (custard apple. E.) leaves lance-ovate : fruit conic, glabrous.

Anthemis. 87.

nobilis (chamomile, E. w. Au. ♃.) leaves 2-pinnate ; leafets 3-parted linear-subulate sub-villose : stem branching at the base. Gives out a fragrant odour.

arvensis (C. w. Au. ☾.) receptacle conic, chaff lanceolate : seed crown-margined : leaves 2-pinnate subdivided lanceolate linear.

cotula (mayweed. O. w. J. ☉.) receptacle conic, chaff-bristly : seed naked : leaves 2-pinnate, leafets subulate 3-parted.

Anthoceros, 110.

levis (wax-liverwort) frond flat, crenate.

punctatus, frond sinuate, lobed, obtuse.

Anthoxanthum, 27.

odoratum, (sweet vernal grass. O. M. ♃.) spike oblong-ovate ; florets subpeduncled, longer than the awn. An American variety, *altissimum*, is larger and of a darker green. Ives.

Antirrhinum, 72.

elatine (creeping snap-dragon. A. P. y. Ju. ☉.) procumbent pilose : leaves alternate hastate entire : peduncles solitary very long.

triornithophorum (three-birds. E.) leaves whorled, lanceolate 3-nerved : stem decumbent : raceme terminal, few flowered, flowers large, peduncled.

linaria (snap-dragon, E. y. Ju. ♃.) erect glabrous : leaves scattered lanceolate-linear, crowd-

ed together : spikes terminal dense-flowered : calyx glabrous shorter than the spur. Flowers large—(toad-flax.)

canadense (flax snap dragon. Y. P. w-b. J. ♃.) rising in a curve, glabrous, very simple : leaves scattered irregularly, erect narrow linear obtuse remote : flowers racemed : scions procumbent. Flowers small.

Anychia, see Queria.

APARGIA, 82.

autumnalis (false hawkweed. H. y. J. ♃.) scape branching scaly : leaves lanceolate runcinate-pinnatifid, smoothish.

Apios, see Glycine.

APIUM, 47.

petroselinum (parsley. E. Ju. ☾.) cauline leaves linear : involucels minute.

graveolens (celery. E. Ju. ☾.) stem channelled : cauline leaves wedge-form.

APOCYNUM, 43.

androsaemifolium (dog-bane. O. r-w. J. ♃.) leaves ovate, glabrous : cymes lateral and terminal : tube of the corol longer than the calyx.

cannabinum (Indian hemp. O. g-y. Ju. ♃.) leaves lanceolate, acute, glabrous : cyme panicle-like : tube of the corol and the calyx equal.

hypericifolium (john's dogbane. C. P. w. Ju. ♃.) stem erectish : leaves oblong heart-form glabrous : cymes shorter than the leaves. Flowers very small ; the plant low and smooth.

AQUILEGIA, 65.

vulgaris (garden columbine. E. J. ♃.) nectaries incurved-horns : leafy stem and leaves glabrous.

canadensis (wild columbine. O. r. & y. Ap. ♃.) horns strait: stamens exsert. Growing frequently in crevices of rocks.

ARABIS, 74.

rhomboidea (wall cress. P. A. w. M. ♃.) leaves glabrous rhomboid, with obsolete spreading teeth; lower leaves with long petioles: root tuberous.

thaliana (mousear cress. W. P. C. w. Ap. ☺.) radical leaves oblong petioled; cauline leaves lanceolate sessile: stem erect rough-haired at the base: petals twice as long as the calyx.

reptans (P. C J. ♃.) leaves sub-rounded entire rough-haired: shoots creeping.

lyrata (P. C. Can. w. Ap. ☺.) leaves glabrous, radical ones lyrate, cauline ones linear.

hispida (P. w. M. ♃.) leaves toothed obtuse hispid, radical ones sub-lyrate, cauline ones: hispid petals erect.

hastata C. w. M.) leaves lanceolate, narrowed at the base, hastate, sessile, very glabrous: peduncles glabrous erect; siliques pendant, falcate, very narrow. Found at Fishkill by Dr. John Torrey.—New species.

falcata (C. Y. W. w. ☺.) leaves hirsute lanceolate, narrowed at both ends, remotely toothed, sessile: silique pendant, 2-edged, falcate. A. canadensis. Will.

ARACHIS, 78.

hypogaea (false ground-nut. E. ☺.) stem pilose procumbent: leaves pinnate abrupt: flowers axillary.

ARALIA, 48.

spinosa (shot bush, angelica tree. P. y-w. Au. ♄.) woody: stem and leaves thorny, leaves doubly-

pinnate ; leafets slightly-serrate : panicles very branching : umbels numerous.

hispida (bristly stem sarsaparilla. W. P. w. J. ½.) low : sub-shrubby : stem and petioles rough with bristles : leaves doubly-pinnate ; leafets ovate gash-serrate unarmed glabrous : umbels with long peduncles.

racemosa (spikenard. O. w. J. 4.) spreading branches : petioles 3-parted, the partitions 3—5-leaved, leafets often heart-form ; branchlets axillary leafy : umbels many sub-panicled, leafless above.

nudicaulis (wild sarsaparilla. O. w. M. 4.) hardly a proper stalk, 1-leafed ; the leaf thrice-ternate or thrice-quinate ; leafets oblong-oval : scape naked, shorter than the leaf : umbels few.

Arbutus, 57.

uva-ursi (bear berry. A. N. Y. C. P. H. w-r. J. ½.) stem procumbent : leaves wedge-obovate, entire : berry 5-seeded.

alpina (Can. w. J. ½.) leaves serrate.

Arctium, 83.

lappa (burdock. O. r. Au. 4.) cauline leaves heart-form petioled toothed : flowers panicled globose : calyx smooth.

Arenaria, 58.

1. *Leaves oblong.*

lateriflora (sandwort. P. C. w. J. 4.) stem filiform simple : leaves ovate obtuse sub-triple-nerved : peduncles lateral solitary elongated 2-cleft, one pedicel middle-bracted : corol longer than the calyx.

serpyllifolia (P. C. w. Ju. ☺.) stem dichotomous

spreading : leaves ovate acute sub-ciliate : calyxes acute sub-striate : petals shorter than the calyx.

2. *Leaves linear-subulate.*

glabra (C. 4.) very glabrous sub-erect filiform many-stems : leaves subulate-linear flat spreading : pedicels 1-flowered elongated divaricate : leafets of the calyx oval obtusish smooth, shorter than the petals.

stricta (N. Whitehills. w. M. 4.) glabrous erect many-stems : leaves subulate-linear erect : panicles few-flowered : petals much longer than the calyx, which is oval-lanceolate apparently striate.

squarrosa (C. w. Ju. 4.) turfy : lower leaves scaly-imbricate channelled glabrous : stems few very simple : flowers few terminal erect : petals much larger than the roundish calyx.

rubra (P. Y. C. r. J. ☺.) glabrous, humifuse : leaves filiform, fleshy, much longer than the joints: stipules connate-membranaceous, sheathing: stamens 5 : capsule angular or globose. Var. *canadensis*, leaves linear, fleshy.

ARETHUSA, 89.

ophioglossoides (snakemouth. Y. C. P. A. r. Ju. 4.) root fibrous : scape with 2 distant leaves, 1 or 2-flowered ; leaves oval-lanceolate : lip fringed. Flowers large.

bulbosa (arethusa. C. Y. P. r. J. 4.) leafless : root globose : scape sheathed 1-flowered : calyx with the superior divisions incurved : lip sub-crenulate. Flowers large sweet-scented.

trianthophorus (P. C. w-p. Au. 4.) pale : root tuberous : stem leafy, 3-flowered at the summit ; leaves ovate alternate : flowers long-peduncled alternate : lip entire. Three or four inches high, flowers small.

verticillata (P. y-r. J. 4.) leaves 5, in whorls, oblong-lanceolate: stem 1-flowered: 3 outer petals very long linear, inner ones lanceolate; lip 3-lobed, the middle division wavy. Flowers of the largest and handsomest kind; sometimes there are 2 or 3 on the stem.

medeoloides (P. y-r. Ju. 4.) leaves whorled, oblong, acuminate: flowers sub-sessile; interior petals short, obtuse. Pursh. Probably the stellata of Muhl.

Argemone, 65.

mexicana (P. y. Ju. ☺.) leaves pinnatifid, gashed, spinose; flowers axillary. Var. *alba*, flowers white.

Aristida, 30.

dichotoma (beard-grass. P. C. Ju. ♂.) turfy: culm dichotomous: flowers sub-spiked, sub-1-awned, awn twisted, shorter than the glume.

oligantha (P. Ju. 4.) culm strait sub-branched: leaves convolute-filiform: flowers distant solitary: awns long spreading.

Aristolochia, 90.

sipho (birthwort. dark purple. J. ♄.) leaves heart-form acute: stem twining: peduncles 1-flowered furnished with an ovate bract: corol ascending, limb 3-cleft equal. A very high running vine, with large leaves.

serpentaria (P. C. p. J. 4.) leaves heart-form, oblong acuminate: stem zigzag ascending: peduncles radical: lips of the corol lanceolate. (The Virginia snakeroot.) There is a variety with very long narrow leaves.

Armeniaca, 61.

vulgaris (apricot. E. ♄.) leaves subcordate: stipules palmate. Var. *precox* (early apricot.) fruit small, yellow. Var. *persicoides* (peach apricot) fruit subcompressed.

dasycarpa (black apricot. E. ♄.) leaves ovate acuminate, doubly-serrate, petioles glandular: drupe globose, pubescent.

Arnica, 86.

montana (arnic. E.) leaves ovate entire; cauline ones in opposite pairs.

Aronia, 62.

arbutifolia (red choak-berry. Y. W. P. C. w-r. M. ♄.) leaves lance-obovate, crenate, downy beneath, with the midrib glandular above: flowers corymbed: calyx downy.

botryapium (shad-bush. O. w. Ap. ♄.) leaves oblong-oval; cuspidate, glabrous: flowers racemed; petals linear: germs pubescent: segments of the calyx glabrous.

sanguinea (bloody choak-berry. C. w. M. ♄.) leaves oval, obtuse at both ends, mucronate, serratures very slender: racemes few-flowered: calyx glabrous: petals linear, obtuse.

melanocarpa (black choak-berry. Y. W. P. C. w. M. ♄.) leaves obovate-oblong, acuminate, serrate, glabrous beneath; midrib glandular above: flowers corymbed: calyx glabrous.

ovalis (medlar bush. Y. C. P. w. M. ♄.) leaves round-oval, acute, glabrous: flowers racemed: petals obovate: germ and segments of the calyx pubescent.

Artemisia, 85.

abrotanum (southern wood, E. 2/. and ½.) stem strait : lower leaves bipinnate, upper ones hair-form pinnate : calyx pubescent hemispheric.

canadensis (wild wormwood. Y. w. y. Au. 2/.) subdecumbent, scarcely pubescent : leaves flat linear-pinnatifid : branchlets spike-flowered : flowers sub-hemispheric : calyx scarious. Receptacle smooth.

pontica (roman artemisia. E.) leaves downy beneath ; cauline ones bipinnate, leafets linear : branches simple : flowers roundish peduncled nodding.

absynthium (wormwood. E. 2/.) stem branching, panicled : leaves hoary ; radical ones triply-pinnatifid, divisions lanceolate toothed obtuse ; cauline ones 2-pinnatifid or pinnatifid, divisions lanceolate acutish : floral ones undivided lanceolate.

vulgaris (mugwort. P. C. S. 2/.) leaves downy beneath ; cauline ones pinnatifid, divisions lanceolate sub-toothed acute ; floral ones undivided linear-lanceolate : flowers sub-sessile oblong erect : calyx downy.

Arum, 94.

dracontium (green dragon. P. J. 2/.) stemless : leaves pedate ; leafets lanceolate oblong entire : spadix subulate longer than the oblong convolute spathe.

atrorubens (brown dragon. P. M. 2/.) stemless : leaves ternate, leafets ovate, acuminate : spadix cylindrical ; spathe sessile ovate acuminate, spreading horizontally above. Spathe dark brown, disagreeable smell.

triphyllum (Indian turnip, wild turnip, false wa-

robin. O. p. & g. M. ♃.) sub-caulescent: leaves ternate; leafets ovate acuminate: spadix club-form: spathe ovate acuminate peduncled, with the lamina as long as the spadix. One variety, *virenes*, has a green spathe; another, *atropurpureum*, has a dark purple spathe.

virginicum (poison arum. H. Y. C. P. g. J. ♃.) stemless: leaves hastate-heart-form acute, lobes obtuse: spathe elongated incurved; green: spadix long-stamen-flowered.

Arundo, 33.

donax (reed grass. E. Nov.) calyx 5-flowered: panicle diffuse: culm somewhat woody.

phragmites (marsh reed grass. Y. P. C. Ju. ♃.) calyx 5-flowered: panicle lax.

conoides (compact reed grass. P. Au. ♃.) panicle spreading: calyx 1-flowered acuminate equalling the corol: awn on the back geniculate.

epigejos (C. ♃.) calyx 1-flowered: panicle erect: leaves glabrous beneath lanceolate. Flowers small.

canadensis (P. J. ♃.) panicle oblong: calyx 1-flowered lanceolate, scabrous pubescent upon the keel: corol awned upon the back, awn of the length of the corol; pubescence equalling the corol: leaves and culm glabrous narrow.

arenaria (sand reed grass. Can. C. Ju. ♃.) panicle spiked: calyx 1-flowered longer than the corol: flowers erect beardless: leaves involute prickly.

agrostoides (P. C. Ju. ♃.) panicle lax diffused: calyx 1-flowered acuminate glabrous: corol shorter than the calyx membranaceous; outer valve gashed at the top: pubescence equalling the corol: leaves flat a little scabrous: culm sheathed and glabrous.

Asarum, 60.

canadense (white snake root, wild ginger. W. N. A. P. p. M. ♃.) leaves broad-kidney-form in pairs: calyx woolly deeply 3-parted, divisions sub-lanceolate reflected. Root aromatic.

virginicum (P. M. ♃.) leaves solitary round-heart-form glabrous leathery: flower sub-sessile: calyx glabrous above, short, bellform. Leaves speckled smooth.

Asclepias, 89.

1. *Leaves opposite.*

syriaca (common milkweed. O. w-p. Ju. ♃.) stem very simple: leaves lanceolate-oblong gradually acute, downy beneath: umbels sub-nodding downy. 3 to 5 feet high; flowers in large close clusters sweet-scented—nectaries are fly-traps.

obtusifolia (Y. P. C. p. J. ♃.) leaves clasping oblong round-obtuse waving: umbel terminal long-peduncled many flowered glabrous; the horn of the nectary exsert. Flowers large.

acuminate (C. r-w. Ju. ♃.) stem erect glabrous simple: leaves ovate sub-cordate acuminate short-petioled, upper ones sessile: umbels lateral solitary erect. About 2 feet high, roots large.

amoena (Y. P. p. Ju. ♃.) in wet places. Stem simple, stem-leaves pointing two ways, sub-pubescent; leaves sub-sessile oblong-oval pubescent beneath: terminal umbels and nectaries erect, appendage exsert.

purpurascens (C. P. p. Ju. ♃.) stem simple: leaves ovate villose beneath: umbels erect: nectaries resupine.

viridiflora (P. Y. g. Ju. ♃.) stem simple erect hirsute: leaves lanceolate-oblong obtusish,

sub-sessile, downy-hirsute : umbels lateral solitary sub-sessile nodding sub-globose dense-flowered ; no appendage.

variegata (C. P. w. Ju. 4.) stem simple erect : leaves ovate petioled rugose naked : umbels sub-sessile pedicelled tomentose. The umbels dense.

incarnata (O. r. Ju. 4.) grows in wet places. stem erect branching above downy : leaves lanceolate sub-downy both sides : umbels mostly double at their origin : the little horn of the nectary exsert. A variety, *pulchra*, is more hairy.

debilis (W. A. C. w. Ju. 4.) smoothish ; stem weak erect simple : leaves petioled oval-lanceolate, acute at both ends, membranaceous : umbels terminal lax-flowered ; pedicels capillary. The bark is a substitute for flax.

quadrifolia (O. w. M. 4.) stem erect simple glabrous leaves ovate acuminate petioled, those in the middle of the stem are largest and in fours : umbels two terminal lax-flowered ; pedicels filiform. About 10 inches high, flowers small and sweet-scented.

laurifolia (P. p. Au.) stem erect glabrous : leaves sub-sessile oval-lanceolate gradually growing narrower, very acute glabrous with a roughish margin.

2. *Leaves not opposite.*

verticillata (dwarf milkweed. Y. A. P. C. g-y. Ju. 4.) stem erect very simple marked with lines and small pubescence : leaves very narrow-linear strait glabrous, whorled generally : horn in the nectary exsert.

tuberosa (N. Y. A. P. y. Ju. 4.) stem erectish, at the top spreading-branched very rough-haired : leaves oblong-lanceolate rough-haired ; umbels terminal, sub-corymbed. A variety, the *decumbens*, has a decumbent stem : leaves sub-linear, hirsute.

Ascyrum, 64.

crux-andreae (peter's wort. P. C. y. Ju. ♄.) many stems, diffuse : leaves sub-lanceolate-oblong obtuse : corymb terminal : flowers sub-sessile 2-styled : stem sub-terete, 2 feet high, petals narrow.

hypericoides (C. y. Ju. ♄.) erect branching, branches 2-edged : leaves oblong with 2 glands at the base : flowers terminal solitary with short pedicels, 3-styled. From 1 to 2 feet high.

Asparagus, 50.

officinalis (asparagus. E. Ju. ♃.) stem herbaceous unarmed sub-erect terete : leaves bristle-form soft : stipules sub-solitary.

Asphodelus, 51.

luteus (asphodel, king's spear. E. ♃.) stem leafy : leaves 3-sided, striate.

ramosus (E. ♃.) stem branching, naked : leaves ensiform, carinate, smooth.

Aspidium, 103.

1. *Fronds ternate.*

cicutarium (P. ♃.) leafets pinnatifid, divisions acuminate sinuate-pinnatifid entire ; the lower and outer divisions of the sides elongated : fruit-dots in rows.

2. *Fronds pinnate.*

acrostichoides (O. J. to Au. ♃.) leafets lanceolate sabre-form acute ciliate-serrate, the upper ones eared and dagger-pointed, the lower ones wedge-form ; the upper fruit-bearing ones smaller : stipe and rachis chaffy : fruit-dots solitary but at length become confluent.

3. *Fronds sub-pinnatifid ; involucre* [indusium] *halved kidney-form.*

novebaracense (N. W. C. P. Ju. 4.) frond pinnate ; leafets linear-lanceolate pinnatifid, divisions oblong obtusish sub-entire cilliate : fruit-dots marginal : stipe smooth.

cristatum (C. P. J. 4.) frond lanceolate-ovate glabrous pinnate ; leafets sub-cordate-oblong pinnatifid, divisions oblong obtuse tooth-serrate : stipe chaffy. A variety, *callipteris*, largeish : leafets alternate, divisions oblong unequally appressed-serrate : frond bearing the fruit at the top. Another variety, *lancastriense*, leafets sub-opposite, divisions triangular ovate acute serrate : stipe naked.

4. *Frond doubly or triply-pinnate, involucre halved kidney-form.*

obtusum (P. Ju. 4.) frond doubly-pinnate the lesser leafets oblong obtuse, the upper ones having united bases tooth crenate : rachis pubescent above. 4 or 5 inches high.

aculeatum (Vermont, Au. 4.) frond doubly-pinnate ; the lesser leafets ovate sub-sabre-form acute dagger-serrate, the base of the upper ones truncate, of the lower ones short-wedge-form ; the upper ones bear the fruit : stipe and rachis chaffy.

marginale (W. Y. C. P. Ju. 4.) frond doubly-pinnate : lesser leafets oblong obtuse decurrent crenate, more deeply crenate at the base : fruit-dots marginal : stipe chaffy. Two or three feet high.

filix-mas (W. N. C. P. Ju.) frond doubly-pinnate, lesser leafets oblong obtuse serrate, serratures beardless : fruit-dots of the middle rib approx-

imate: stipe and rachis chaffy. 2 or 3 feet high. A variety, *erosum*, lesser leafets eroseserrate more remote.

intermedium (P. W. J. 4.) frond doubly-pinnate; lesser leafets linear gash-pinnatifid, divisions sub-mucronate-serrate: stipe chaffy. Resembles the next species in many respects.

spinulosum (P. Ju. 4.) frond doubly-pinnate: lesser leafets oblong decurrent running together gash-toothed; divisions mucronate-serrate: spike chaffy: involucre glandular. Large.

dilatatum (P, Ju, 4.) frond doubly-pinnate; lesser leafets oblong distinct gash-pinnatifid, divisions mucronate-serrate: stipe chaffy: involucre smooth. Leaves more compound, larger and broader than the filix-femina.

Remark. This genus has been divided, and the remainder of the species are placed under the genus Athyrium. There is no difficulty in distinguishing that genus from the Aspidium, if care be taken to ascertain the precise origin of the involucres. In some species of the Aspidium, the involucres appear, at first view, to be attached to one side of the fruit-dots; especially those which are kidneyform. But on a minute examination, the point, by which the involucre is attached to the frond of the Aspidium, will be found to be surrounded by the capsules of the fruit-dot. Whereas the involucres of the Athyrium are attached to the frond entirely outside of the capsules of the fruit-dots.

Asplenium, 102.

rhizophyllum (walking leaf. O. Ju. 4.) frond lanceolate stiped sub-crenate, heart-form ears at the base; apex very long linear-filiform rooting.

angustifolium (spleenwort. W. C. P. Ju. 4.) frond pinnate; leafets alternate, upper ones sub-alternate, linear-lanceolate sub-repand, base of the upper ones truncate, of the lower ones rounded. 1 foot high.

ebeneum (W. C. P. Ju. 4.) frond pinnate: leafets sessile lanceolate serrulate, cordate at the base, auricled above. A very small species.

melanocaulon (W. P. A. Ju. 4.) frond pinnate; leafets roundish obtuse crenate at its base wedge-form: stipe particoloured. Very small; stem black, polished.

thelypterioides (W P. Ju. 4.) frond pinnate; leafets sessile lanceolate acuminate, deeply pinnatifid, divisions oblong obtuse, obtusely-serrate: fruit-dots parallel, at length confluent.

ruta-muraria (W. C. P. Ju. 4.) frond bipinnate at the base, simply pinnate at the apex; leafets rhombic-oblong, obtuse, with the apex obtusely denticulate.

montanum (W. Ju. 4.) frond glabrous, bipinnate; leafets lanceolate, pinnatifid, divisions 2-or-3-toothed.

Aster, 86.

1. *Leaves entire.*

hyssopifolius (starflower. C.w.y.p. Au. to O.) leaves linear-lanceolate 3-nerved punctate acute margin scabrous: branchlets level-top-corymbed compact: rays sub-5-flowered; calyx imbricate twice as short as the disk. 12 to 24 inches high.

solidaginoides (P. w. Au. 4.) leaves linear-lanceolate obsolete 3-nerved entire obtuse, margin scabrous: branches level-top-corymbed: flowers sessile aggregate; rays 5-flowered, calyx shorter than the disk imbricate, scales oblong obtuse close-pressed, sub-reflexed at the apex.

About 2 feet high: scales of the calyx white with green tips ; rays long and white.

ledifolius (C. N. P. y. w. S. and Oc. 2.) leaves linear-lanceolate tapering to the base, without nerves, roughish, revolute margin: branches corymbed : branchlets filiform 1-flowered nakedish : calyx lax imbricate twice as short as the disk : leafets very acute : rays sub-20-flowered. A variety, *uniflorus*, has a very simple stem bearing but one flower. About a foot high ; sometimes the leaves have a small indenture on each side.

rigidus (N. Y. C. p. y. Au. 2.) leaves linear mucronate sub-carinate rigid, margin rough-ciliate ; the cauline leaves reflexed, the branch ones spreading subulate : stem erect sub-branched above, branchlets 1-flowered corymbed : calyx imbricate twice as short as the disk : scales carinate very obtuse : rays sub-10-flowered reflexed. Hardly a foot high.

linariifoluis (N. P. p. y. Au. 2.) leaves thick-set linear mucronate dotted carinate rough stiff, rameous, recurved : stem sub-decumbent: branches level-topped 1-flowered calyx imbricate of the length of the disk. A little lower than the preceding species and flowers smaller ; stem rough, purplish.

linifolius (N. P. S. 2.) leaves linear without nerves dotted rough reflexed-spreading : branches level-top-corymbed leafy : calyx imbricate short : rays about equal to the disk.—About 18 or 24 inches high.

subulatus (P. Au. 2.) very glabrous ; small-flowered : stem panicled : branches many flowered : leaves linear-subulate : calyx cylindric ; ligulate florets of the ray minute.

foliolosus (P. C. W. Au. 2.) leaves linear-lanceolate tapering to both ends acuminate : stem pubescent panicled erect : branches few-flowered ; calyx imbricate : scales linear acute

close pressed. Flowers small; hardly distinct from the next species.

tenuifolius (P. w. Au. 4.) leaves linear-lanceolate tapering to both ends, hispid margin: stem glabrous branching erect; branchlets 1-flowered: calyx imbricate, scales oblong acute lax.

dumosus (P. C. w. y. Au. 2.) leaves linear glabrous, those of the branchlets are the shortest: branches panicled: calyx cylindric closely imbricate. A variety called *violaceus*, has pale violet rays and a pubescent stem. Another variety, *albus*, has white rays and a glabrous stem. Flowers small.

ericoides (P. w-y. Au. 2.) leaves linear very glabrous, those of the branchlets subulate approximate, cauline ones elongated: calyx somewhat scurfy: leaves acute: stem glabrous. Flowers small.

multiflorus (P. W. w-y. Au. to N. 4.) leaves linear smoothish: stem very branching diffuse pubescent, branchlets one-way: calyx imbricate, scales oblong scurfy acute. Probably a variety of the last.

sparsiflorus (P. C. y. w. p. S. 4.) very glabrous: leaves subulate-linear sub-carinate sub-reflexed: stem slender very branching; branches and branchlets spreading bristle-form 1-flowered: scales of the peduncles divaricate subulate: calyx imbricate, scales close-pressed acute. Resembles the last; flowers smaller.

concolor (P. r-p. Au. 4.) leaves oblong-lanceolate white pubescent both sides; stem very simple erect pubescent: raceme terminal: calyx imbricate, scales lanceolate silky close-pressed. About a foot high; ray and disk coloured alike.

cornifolius (P. J. 2.) glabrous: leaves oblong-ovate acuminate short-petioled, margin rough: panicle few flowered, branches 2-flowered; calyx sub-imbricate. Flowers white.

humilis (P. w. Au. 4.) leaves sub-rhomboid oval-

lanceolate, acuminate at both ends, sub-petioled glabrous, margin hispid: corymb divergingly dichotomous nakedish few-flowered: calyx lax imbricate: rays 8-flowered. About a foot high; flowers large.

amygdalinus (P. w. S. ♃.) leaves lanceolate tapering to the base acuminate, margin rough: stem simple, level-top-corymbed at the top: calyx lax imbricate, scales lanceolate obtuse.—Rays large.

salicifolius (C. r-b. Au. ♃.) leaves linear-lanceolate sub-entire glabrous: stem glabrous panicled at the top: calyx lax imbricate, scales acute spreading at their tips. From 4 to 6 feet high; flower middle-sized.

aestivus (C. P. b. Ju. to S. ♃.) leaves lanceolate sub-clasping tapering to the apex, margin rough: stem branching from its base, erect hispid; branchlets pilose: calex scaly, scales lax linear acute equal. About 2 feet high; the flowers resembling the last.

nova-angliae (C. N. b-p. S. to Nov. ♃.) leaves linear-lanceolate pilose clasping, auricled at the base: stem sub-simple pilose straight and stiff: flowers sub-sessile terminal crowded: scales of the calyx lax coloured lanceolate longer than the disk. In rich soil it grows 10 feet high: flowers large.

cyaneus (N. P. b-p. S. to Nov. ♃.) leaves linear-lanceolate clasping smooth: stem wand-like-panicled very glabrous: branches racemed: scales of the calyx lax lanceolate equalling the disk, inner ones coloured at the apex. 3 or 4 feet high; flowers many and large. This is the handsomest of all asters.

phlogifolius (C. P. p. Au. ♃.) leaves lanceolate heart-form clasping pubescent beneath, rough margin: stem very simple pubescent: panicle terminal lax few-flowered: scales of the calyx

lax imbricate lanceolate. From 18 to 24 inches high.

patens (P. p-y. S. to Nov. 4.) leaves oblong-lanceolate ciliate, heart-form clasping rough both sides hairy: stem branching rough with hairs; branches spreading elongated few-flowered, small-leaved: scales of the calyx imbricate lanceolate spreading. From 1 to 2 feet high.

2. *Leaves heart-form and ovate, serrate.*

undulatus (P. p. S. 4.) leaves oblong heart-form clasping entire hairy sub-undulate; lower ones ovate heart-form sub-serrate petioled; petioles winged: stem panicled hispid; branchlets one-way leafy. 1-flowered. Flowers small.

paniculatus (P. b-p. Au. to Nov. 4) leaves ovate-lanceolate sub-serrate petioled glabrous; radical ones ovate-heartform serrate rough petioled; petioles naked: stem very branching glabrous; branchlets pilose: calyx lax sub-imbricate. From 2 to 4 feet high; flowers smallish, numerous.

cordifolius (N. A. W. P. w-p. S. 4.) leaves heart-form pilose beneath, sharp-serrate petioled; petioles winged: stem panicled smoothish; panicles divaricate: calyx lax sub-imbricate. Flowers small. A. heterophyllus. Willd.

corymbosus (N. P. W. Au. 4.) leaves ovate sharp-serrate acuminate smoothish; lower ones heart-form petioled; petioles naked: stem glabrous, leveltop-corymed above: branches pilose: calyx oblong imbricate, scales obtuse very close-pressed. 12 to 24 inches high: flowers rather large.

macrophyllus (P. w-b. S. to Nov. 4.) leaves ovate petioled serrate rough; upper ones ovate-heart-form sessile; lower ones heart-form petioled; petioles sub-margined: stem branching diffused: calyx cylindric closely imbricate, scales

oblong acute. 1 or 2 feet high ; flowers largeish.

chinensis (china aster. E. ☺.) leaves ovate thickly toothed petioled ; cauline ones sessile at the base wedge-form, floral ones lanceolate entire : stem hispid ; branches 1-flowered : calyx foliaceous. A variety has very full flowers various-coloured and very short rays.

3. *Leaves lanceolate and ovate, lower ones serrate.*

amplexicaulis (P. b. S. ♃.) leaves ovate-oblong acute clasping heart-form serrate glabrous : stem panicled glabrous ; branchlets 1-2-flowered : scales of the calyx lanceolate closely imbricate. Flowers mid-sized.

prenanthoides (P. b. ♃.) leaves clasping spatulate-lanceolate acuminate, serrate in the middle, heart-form at the base : branchlets pilose : scales of the calyx lanceolate scurfy.

laevigatus (P. r-p. S. to Nov. ♃.) leaves sub-clasping broad lanceolate sub-serrate smooth : stem very branching glabrous, branchlets many flowered : scales of the calyx lanceolate lax nearly equalling the disk.

versicolor (C. y-w. Au. ♃.) leaves sub-clasping broad-lanceolate sub-serrate glabrous : radical ones serrate in the middle : stem very branching glabrous : scales of the calyx lanceolate lax shorter than the disk. Flowers many and large, elegant.

mutabilis (P. p-y. Au. to Oc. ♃.) leaves sub-clasping : upper ones lanceolate acuminate entire ; lower ones lanceolate at the base narrow serrate : branchlets wand-like : calyx shorter than the disk lax : stem glabrous.

laevis (C. b-p. S. to Nov. ♃.) leaves sub-clasping remote, oblong entire shining ; radical ones sub-serrate ; branches simple 1-flowered : calyx

imbricate, the leafets sub-wedgeform acute thickened at the apex: stem glabrous angular.

coccinneus (P. C. b-p. S. to Nov. ♃.) leaves lanceolate sub-clasping: lower ones sub-serrate glabrous: stem simple panicled at the top: calyx closely imbricate.

puniceus (N. W. P. A. p. S. to Nov. ♃.) leaves clasping lanceolate serrate roughish: branches panicled: calyx lax exceeding the disk, the leafets linear-lanceolate sub-equal: stem hispid. A variety, *purpureus*, seven feet; stem deep purple. Another variety, *rufescens*, eight-feet: from green becoming reddish. From three to ten feet high; flowers large.

novi-belgii (N. P. w-p. Au. ♃.) leaves sub-clasping lanceolate glabrous, rough at the margin; lower ones sub-serrate: branches sub-divided: calyx lax imbricate, the leafets linear-lanceolate: stem terete glabrous.

spectabilis (P. b. Au. ♃.) leaves lanceolate roughish sub-clasping: lower ones serrate in the middle: branches corymbed: leafets of the calyx foliaceous sub-wedgeform acutish scurfy. About two feet high: flowers large.

serotinus (C. b. S. ♃.) leaves oblong-lanceolate acuminate sessile glabrous; margin rough; lower ones serrate: branches corymbed glabrous; branchlets 1-flowered: scales of the calyx lanceolate acuminate spreading. About three feet; flowers large.

tardiflorus (C. b. Oc. ♃.) leaves sessile serrate glabrous spatulate-lanceolate, tapering to the base, deflected at the margin and both sides: branches divaricate: calyx lax, the leafets lanceolate-linear sub-equal glabrous. Flowers not middle size.

blandus (Can. p. Oc. ♃.) leaves sub-clasping oblong-lanceolate acuminate serrate glabrous: stem branching in a pyramid form: branches axillary flowers in racemes scarcely longer than

the leaf; peduncles downy and naked: calyx lax sub-equal, shorter than the disk. Flowers largish.

acuminatus (P. W. w. Au. 4.) leaves broad-lanceolate, lower ones tapering entire, upper ones unequally serrate long-acuminate: stem simple zigzag angular: panicle corymbed divaricate-dichotomous: leafets of the calyx lax linear shorter than the disk. A variety called *elatior*, has a taller stem; panicles many-flowered and leafy. Another variety, *pumilus*, has a lower stem; corymb few-flowered naked scarcely higher than the leaves. Commonly 12 inches high and upwards; flowers middle-size.

conyzoides (P. w. Au. 4.) leaves oblong 3-nerved, narrow acute at the base; upper ones sessile sub-entire; lower ones petioled serrate: stem simple corymbed at the top: calyx cylindric scurfy: rays 5, very short. About 12 inches high; flowers small.

radula (P. w. S. 4.) leaves lanceolate serrate acuminate rigose very rough: stem erect angular simple: corymb terminal: calyx imbricate, leafets lanceolate obtusish sub-scurfy. Flowers mid-size.

strictus (P. y-r. S. 4.) leaves sessile narrow-lanceolate serrate rough: stem 1 or 2-flowered above: scales of the calyx imbricate close-pressed oblong acute nearly equalling the disk. Four to seven inches high; flowers middle-sized.

tradescanti (P. w-p. Au. 4.) leaves lanceolate serrate sessile glabrous: branches wand-like: calyx imbricate: stem terete glabrous. 3 to 4 feet high; flowers small.

recurvatus (N. P. b. S. 4.) leaves sessile narrow-lanceolate, tapering to the base: lower ones serrate in the middle: stem branching glabrous recurvate: scales of the calyx lax imbricate linear lanceolate sub-equal. Resembles the last.

laxus (C. w-y. S. to Nov. 4.) leaves linear-lanceolate acuminate rough margin: lower ones subserrate: stem sub-reflexed: branches very spreading: stem lax panicled at the apex: calyx imbricate, leafets lanceolate acute reflexed apex.

junceus (P. r. Au. 4.) leaves lanceolate-linear sessile glabrous; lower ones sub-serrate; those of the branchlets lanceolate; stem panicled glabrous: branches wand-like: calyx imbricate. 4 to 6 feet high.

dracunculoides (C. w. S. 4.) leaves linear acuminate entire; lower ones linear-lanceolate sub-serrate: branches corymbed: calyx imbricate: stem smoothish. About 3 or 4 feet high.

miser (Can. Au. 4.) leaves sessile lanceolate serrate glabrous: calyx imbricate, leafets acute: florets of the disk and ray equal: stem sub-villose.

divergens (C. w-r. S, 4.) leaves elliptic-lanceolate serrate glabrous; cauline ones linear lanceolate elongated: branches spreading: calyx imbricate: stem pubescent. 3 to 5 feet high; flowers small.

diffusus (P. w. S. to Nov. 4.) leaves elliptic-lanceolate serrate glabrous all proportioned: branches spreading: calyx imbricate: stem pubescent. Flowers small.

pendulus (P. w. Oc. Nov. 4.) leaves elliptic-lanceolate serrate glabrous; those of the branchlets remotish: branches very divaricate pendulous: stem pubescent. Resembles the preceding; but the disk turns brown.

Astragalus, 80.

glaux (milk vetch. E. ☺.) caulescent, diffuse: the little heads peduncled imbricate ovate: flowers erect; legume ovate callous inflated.

depressus (trailing vetch. E. 4.) sub-caulescent, procumbent: leafets obovate: raceme shorter than the petiole: legume terete lanceolate reflexed.

secundus (Can. p. Ju. 4.) caulescent, procumbent: leafets ovate pubescent: spikes peduncled: legumes one-way strait acuminate, both ends pendulous.

canadensis (P. C. y. Ju. 4.) caulescent diffuse: leafets (21) glabrous both sides: legume subcylindric mucronate.

carolinianus (P. y. J. 4.) caulescent, erect: leafets (41) oblong, pubescent beneath: spikes peduncled: bracts lanceolate of the length of the peduncle: legumes ovate tumid beaked.

Atheropogon, 32.

apludoides (hair-beard. P. S. 4.) leaves narrow: flowers alternate on a spike About a foot high.

Athyrium, 103.

1. *Frond pinnate.*

thelypteris (snuffbox fern. C. P. Ju. 4.) leafets pinnatifid, lance-linear, glabrous; divisions of leafets acute, fruit-dots marginal, at length confluent.

2. *Frond doubly-pinnate, leafets with toothed serratures.*

filix-femina (P. Ju. 4.) fruit-dots strait, oblong: leafets lance-oblong.

asplenioides (P. New-England. Ju. 4.) fruit-dots lunate.

angustum (C. P. J. 4.) frond bipinnate, leafets lanceolate, gash-serrate, serratures sub-dentate, the lower one elongated above: fruit-dots oblong sublunate.

3. *Same with leafets serrate.*

bulbiferum (C. P. Ju. 4.) leafets opposite: fruit-dots roundish, lower leafets pinnatifid.

4. *Same with leafets notched, or toothed.*

tenue (P. Ju. 4.) leafets decurrent, toothed: fruit-dots solitary, near the teeth.

rufidulum (C. P. J. 4.) leafets setose-chaffy beneath, oblong obtuse crenate, coadunate: fruit-dots at length confluent.

punctilobum (P. Ju. 4.) leafets decurrent, ovate-oblong, pinnatifid, the divisions about 4-toothed furnished with a solitary fruit-dot: midribs pubescent: stipes glabrous.

ATRAGENE, 67.

americana (C. P. b. M. ♄.) leaves in fours, ternate; leafets cordate, subentire: climbing.

ATRIPLEX, 44.

halimus (orach. C. ♄.) leaves alternate or opposite, oblong-subrhomboid entire.

hortensis (garden orach. Ju. ☺.) stem erect herbaceous: leaves triangular toothed of an uniform colour: calyx of the fruit ovate, netted, entire.

laciniata (C. J. ☺.) stem erect herbaceous: leaves triangular deeply toothed white beneath: calyx of the fruit rhomboid 3-nerved denticulate.

patula (C. Ju. ☺.) procumbent; stem herbaceous spreading: leaves triangular-lanceolate: calyx of the fruit triangular acute, toothed at the margin.

Atropa, 39.

belladonna (deadly nightshade. E. w-y. ♃.) stem herbaceous, brachiate : leaves ovate entire. Berries black and poisonous.

physaloides (P. w-b. Ju. ☉.) stem very branching : calyx membranaceous, 5-angled, net-veined : berry fleshy covered with the calyx. Nicandra physaloides of Persoon.

Aucuba, 92.

japonica (japan shrub. E. y. J. ♄.) leaves opposite, serrate, with yellowish spots.

Avena, 32.

sativa (oats. E. J. ☉.) panicled : calyx 2-seeded ; seeds smooth, one of them awned. First discovered in the island of Juan Fernandes. A variety is awnless and has black seeds.

sterilis (animated oats. E. Ju. ☉.) panicled : calyx about 5-flowered : florets hairy, the middle ones awnless. When dry the heads are set in motion, if moistened, by the warmth of the hand.

fatua (P. Au. ☉.) panicled : calyx 3 flowered ; florets spreading, all awned and the base rough-haired.

elatior (W. H. J. ♃.) panicle sub-contracted nodding : glume 2-flowered ; florets, perfect sub-awnless, staminate awned : culm geniculate glabrous : root creeping.

spicata (W. P. J. ♃.) panicle sub-spiked few-flowered : calyxes in spikelets 6-flowered longer than the spikelets : valves awned outwardly from the 2-horned apex ; awn spiral at the base : leaves sub-bristle-form villose at the neck.

pensylvanica (P. New-England. J. ☉.) panicle tapering : calyx 2-flowered : seed villose : awn twice as long as the calyx.

Azalea, 40.

lapponica (mountain honeysuckle. Whitehills. p. Ju. ♄.) leaves oval, punctate, excavated, rough: corol bellform.

procumbens (Whitehills. r. Ju. ♄.) leafy flowered: branches diffuse-procumbent: leaves opposite cliptic glabrous, margin revolute: corol bellform glabrous: filaments inclosed equal. Flowers small; resembles Ledum buxifolium: all the other species resemble the Rhododendron.

calendulacea (P. r. & y. Ap. ♄.) sub-nakedflowered: leaves oblong pubescent both sides, and when full-grown become rough-haired: flowers abundant large not viscous: teeth of the calyx oblong: corol with a hirsute tube shorter than its divisions. A variety, *flammea*, has a flame-coloured flower. Another, *crocea*, has a saffron-coloured flower.

canescens (Catskill mountains. r. J. ♄.) sub-nakedflowered: leaves obovate-oblong pubescent on the upper side and downy beneath; nerves not bristle-bearing: flowers not viscous: tube of the corol scarcely shorter than its divisions: teeth of the calyx very short round-obtuse: stamens scarcely exsert.

nudiflora (early honeysuckle. O. r. M. ♄.) sub-nakedflowered: leaves lanceolate-oblong, smoothish both sides, uniform-coloured: nerves on the upper side downy and beneath bristly; margin ciliate: flowers abundant not viscous: their tubes longer than their divisions: teeth of the calyx short oval sub-rounded: stamens very much exsert. A variety, *coccinea*, has scarlet flowers and lanceolate leaves. Another, *rutilans*, has deep red flowers and minute calyx. Another, *carnea*, has pale red flowers, with red bases and leafy calyx. Another, *alba*, has white flowers with a middling calyx. Another, *papilionacea*, has

red flowers with the lower divisions white, calyx leafy. Another, *partita*, has flesh-coloured flowers 5-parted to the base. Another, *polyandria*, has rose-coloured flowers with from 10 to 20 stamens.

nitida (swamp honeysuckle. Y. C. w. J. ♄.) leafy-flowered: branches smoothish: leaves few oblanceolate sub-mucronate leathery, glabrous both sides and the upper side shining; nerve bristle-bearing beneath, margin revolute-ciliate: flowers viscous, tube a little longer than the divisions: calyx very short; filaments exsert. Leaves dark green, smallish.

viscosa (white honeysuckle. O. w. J. ♄.) leafy-flowered: branches hispid: leaves oblong-obovate acute, both sides glabrous and one-coloured: nerve bristle-bearing, margin ciliate: flowers viscous, tube twice as long as the divisions: teeth of the calyx very short rounded: filaments scarcely longer than the corol. Flowers very sweet scented.

glauca (fragrant honeysuckle. P. w. J. ♄.) leafy-flowered: branchlets hispid: leaves oblanceolate acute, both sides glabrous and glaucous beneath; nerve bristle-bearing, margin ciliate: flowers very viscous: tube of the corol twice as long as its divisions: calyx very short; filaments about equal to the divisions of the corol. Rather lower than the other species; flowers abundant.

B.

Baccharis, 84.

halimifolia (groundsel tree. C. w. S. ♄.) leaves obovate, gash-toothed above: panicle compound leafy, fascicles peduncled. The whole shrub covered with white powder.

angustifolia (ploughman's spikenard. Southern states. w. Ju. ½.) very glabrous much branched-panicled: leaves narrow-linear entire: panicle compound many-flowered: calyx small, about 20-flowered.

Baemyces, 117.

1. *Crustaceous, nearly uniform: knobs on short solid cylindric simple soft stocks.*

rosea, thin, leprous, a little granular, greyish-white: stalks very short, cylindric white: knobs simple flattish, becoming tumid and lobed, flesh colour.

byssoides (H. W.) greenish-grey, mealy: stalks white compressed, dilated upwards: knobs globular, becoming clustered brown.

2. *Leafy cartilaginous-crustaceous imbricate: knobs on long cylindric, mostly solid stalks, which are simple or divided at top.*

symphycarpa, segments cut-crenate, grey-greenish brown, white beneath: stalks short, the colour of the frond, a little pervious and slightly branched at top: knobs crowded, brown.

cariosa, segments minute, cut-crenate, whitish-green: stalks carious, cancellated, rough, whitish-green, a little pervious and branched at top: knobs are crowded, purplish-black.

delicata, segments very minute, linear many-cleft, curled, petioled, rather erect, mealy, white: stems filiform, naked, simple and somewhat divided: knobs clustered, pale brown becoming black.

papillaria, lobes very minute, rounded-crenate, greenish-grey: stalks fistular, inflated, simple or slightly divided, greenish-grey: knobs simple, red-brown.

3. *Leafy cartilaginous-crustaceous, imbricate: stalks fistular, cupped at top.*

bacillaris, segments in many sinuate-crenate divisions: stems filiform, greyish-white; cups nearly cylindric, minute, entire, closed or none: knobs scarlet.

coccifera (scarlet lichen. O.) lobes cut-crenate: stems short, obconic greenish-grey: cups dilated, entire, closed: knobs marginal, nearly sessile, larger, scarlet.

deformis, lobes cut-crenate: stems long, thick, a little inflated, pale yellowish-grey: cups irregular, toothed, closed, becoming pervious: knobs marginal scarlet.

bellidiflora, lobes minute, cut-crenate: stems long, cylindric, slightly branched, rough pale-greenish: cups terminal, clavate closed: knobs marginal, globular, very minute, much crowded, scarlet.

pyxidata (H.) lobes cut-crenate: stems short, obconic: cups dilated, wineglass-form, closed, entire: knobs marginal, dark-brown.

cornuta (brittle lichen. H. W. Y.) lobes cut-crenate: stems long, simple, a little inflated, pointed, barren cup-bearing: cups cylindric, closed, nearly entire: knobs minute, marginal, sessile, brown.

gracilis, lobes cut-crenate: stems long, filiform, pointed, barren cup-bearing: cups wineglass-form, closed, subulate-toothed: knobs pedicelled, brown.

ventricosa, segments deeply cut and crenate: stems erect, rigid, inflated, grey scaly roughish: cups obsolete, pervious, radiate-branched: knobs terminal, pale brown.

alcicornis, lobes rather erect, sinuate-lobed, obtuse: stems leafy all over, short: cups minute, turbinate: knobs marginal, nearly sessile, blackish-brown.

parecha, lobes sub-erect, deep-manycleft, sub-pinnate, narrowed: cups supra-foliaceous, turbinate, torn-toothed: stems becoming branched, thick inflated; branches very short projecting, denticulate at top; knobs clustered, bay.

4. *Leafy, cartilaginous-crustaceous, evanescent: stem mostly fistular, long, rigid, tapering, shrubby-branched.*

uncialis, closely tufted, tubular, greenish-white; branches short; spread, radiate-stellate toothed and perforated at top; knobs small, globular, tawny.

aduncа, scattered, tubular, pale-hoary, vaguely branched, radiately hook-spinous and perforated at the tips and axils: knobs on the terminal spines, pale rust-colour.

rangiferina (Y. H. W. A.) cylindric, tubular, erect, much branched, greyish, perforated at the axils; branchlets recurved at their tips: knobs 3 or 4 together, globular, red-brown.

furcata, cylindric, tubular, erect, tapering, grey-brown; branches ascending dichotomous and forked: knobs dull brown.

spinosa, nearly cylindric, tubular, grey-brown, vaguely branched; branches effuse, curved, flexuous, with spines pointing backwards; fertile branchlets sub-digitate, with brown knobs.

vermicularis, stems tubular, sub-filiform, subulate, almost simple, prostrate, pure white.

Ballota, 69.

nigra (false motherwort. Y. 4. naturalized and grows wild about New-Haven.) Leaves heart-form, undivided, serrate: leafets of the calyx acuminate. Ives.

Balsamita, 84.

suavolens (costmary, sweet tansey. E. 4.) leaves toothed; upper ones with eared bases.

Barbula, 107.

apiculata (spiral tooth-moss. W. M.) stem short, simple: leaves remotish lance-oblong, acuminate, erect, spread, capsule oblong; lid beaked.

acuminata (W. J.) leaves linear: capsule cylindric, erect; lid acuminate.

humilis, short, nearly simple: leaves oblong-spatulate, acuminate, keeled, crowded, erect, spread: capsule oblong: lid acuminate.

fallax, branched: leaves lance-linear, acuminate, keeled, recurve-spreading: capsule oblong, lid oblique.

tortuosa, branched: leaves awl-form, spread, twisted when dry: capsule ovate-oblong: lid conic, erect.

Bartonia, 34.

paniculata (screwstem. Y. N. P. C. w. Ju. ☉.) stem somewhat branching, 4-sided, somewhat spirally twisted: peduncles opposite. Stem nearly leafless, 5 or 6 inches high.

Bartramia, 108.

1. *Peduncles taller than the stem.*

fontana (paper-tooth moss) branches fascicled, nearly simple, cylindric: leaves ovate, pointed, serrulate at top, close-pressed.

marchia, branches fascicled, nearly simple and cylindric: leaves lanceolate, pointed, entire, erect, spread.

menziesia. stem long, forked, cylindric : leaves lance-subulate, entire, close-pressed : peduncles about equalling the stem.

oederiana. stem long, somewhat divided : branches scattered : leaves lanceolate, acute, serrulate, reflex-spread.

crispa, stem nearly simple : leaves bristle-form, serrate, spread, curled when dry : capsule inclined : lid obtusely conic.

2. *Peduncles shorter than the leaves.*

arcuata, branched : leaves lanceolate, serrate, striate, recurve-spread : peduncles lateral curved : capsules pendulous.

halleriana stem slightly divided : leaves subulate, serrulate, erect-spread peduncles lateral, curved : capsule pendulous.

BARTSIA, 71.

coccinea (painted cup. Y. P. y. & r. J. ☿.) leaves alternate linear gash pinnatifid ; divisions linear : bracts dilated generally 3-cleft longer than the flowers : teeth of the calyx rounded-obtuse. Flowers yellow with scarlet bracts. One variety, *pallens*, has yellow bracts.

pallida (Whitehills. w-y. Au. ♃.) leaves alternate linear undivided ; upper ones lanceolate ; floral ones sub-oval, sub-toothed at the summit ; all are 3-nerved : teeth of the calyx acute.

BATHELIUM, 113.

mastoideum (olive lichen.) effuse, glabrous, somewhat cartilaginous, uneven, olive-brown : receptacles nearly globular, opening after the lid falls off.

BATSCHIA, 37.

canescens (puccoon. false bugloss. P. y. Ju. ♃.) whitening-villose : leaves all oblong : calyx

very short : divisions of the corol entire. A red substance covering the root is the puccoon of the Indians.

Bellis, 85.

perennis (daisy. E. w. & p. Ap. ♃.) leaves obovate, crenate : scape naked, 1-flowered.

Berberris, 48.

vulgaris (barberry. H. N. Y. C. P. y. M. ♄.) branches punctate : prickles mostly in threes : leaves obovate, remotely serrate : flowers racemed.

Beta, 44.

vulgaris (beet. E. g. Au. ☿.) flowers heaped together : lower leaves ovate.

cicla (white beet, scarcity. E. ☿.) flowers in threes : radical leaves petioled, cauline ones sessile : lateral spikes very long.

Betonica, 69.

officinalis (betony. E.) spike interrupted : upper lip entire, middle division of the lower lip emarginate : calyx and bract glabrous.

Betula, 95.

populifolia (white birch, poplar birch. N. C. Ju. ♄.) leaves deltoid long-acuminate unequally serrate, very glabrous ; scales of the strobile with rounded lateral lobes : petioles glabrous. 30 to 40 feet high.

excelsa (tall birch, yellow birch. C. W. N. J. ♄.) leaves ovate acute serrate : petioles pubescent shorter than the peduncle : scales of the stro-

bile with rounded lateral lobes. 70 to 80 feet high.

rubra (red birch. M. ♄.) leaves rhombic-ovate doubly-serrate acute pubescent beneath. base entire: pistillate ament ovate: scales villose; divisions linear equal. About 70 feet high; excellent cabinet timber. B. nigra.

papyracea (paper birch, canoe birch. C. W. ♄.) leaves ovate acuminate doubly-serrate; veins hirsute beneath; petiole glabrous: pistillate ament peduncled nodding; scales with lateral short sub orbicular lobes. Has a paper-like bark, of which the Indians construct canoes.

lenta (spicy birch, cherry birch. O. M. ♄.) leaves heart-ovate sharp-serrate acuminate; nerves and petioles pilose beneath: scales of the strobile glabrous with obtuse equal lobes having elevated veins. Large tree whose wood is much like mahogany; very sweet-scented. B. nigra. Wangh.

glandulosa (scrub birch. C. P. M. ♄.) branches glandular-dotted glabrous: leaves obovate serrate at the base entire glabrous sub-sessile: pistillate ament oblong, scales half-3-cleft: seed orbicular with a narrow margin. About 2 feet high.

pumila (dwarf birch. C. P. J. ♄.) branches pubescent dotted: leaves orbicular-obovate petioled, dense-pubescent beneath: pistillate ament cylindric. 2 or 3 feet high.

Bidens, 84.

cernua (water beggar-ticks O y. Au. ☉.) flowers sub-rayed drooping: outer calyx longer than the flower: leaves lanceolate sub-connate toothed. One variety, *minima*, has sessile leaves and erect flowers and seeds. Another variety, *coreopsis*, has serrate opposite clasping leaves.

chrysanthemoides (daisy beggar-ticks. O. y. Au. ☉.) flowers rayed drooping, the ray thrice as long as the sub-equal calyx : leaves oblong, tapering to both ends, toothed, connate. Flowers large ; 2, 3 or 4 awns to a seed.

frondosa (burr-marygold. O. y. Ju. ☉.) flowers discoid : outer calyx six times as long as the flower, leafets ciliate at the base : lower leaves pinnate, upper ones ternate lanceolate serrate.

connata (P. y. Ju. ☉.) flowers discoid : outer calyx thrice as long as the flower : cauline leaves ternate : lateral leafets connate, floral ones oblong-lanceolate.

pilosa (P. Ju. ☉.) flowers discoid : outer calyx of the length of the inner : lower leaves pinnate, upper ones ternate ; leafets oblong, a terminal lanceolate one twice as long as the rest.

bipinnata (hemlock beggar-ticks. P. y. Ju. ☉.) flowers sub-rayed : outer calyx of the length of the inner. Leaves doubly pinnate, leafets lanceolate pinnatifid.

Bignonia, 72.

radicans (trumpet flower. P. r. & y. Ju. ½.) leaves pinnate : leafets ovate toothed acuminate : corymb terminal : tube of the corol thrice as long as the calyx : stem rooting. Most beautiful climbing shrub. One variety, *flammea*, has yellow-scarlet flowers. Another variety, *coccinea*, has bright scarlet flowers.

Bignonia, see Catalpa.

Blechnum, 102.

borealis (Roman fern. Au. 4.) barren frond pinnatifid, divisions lanceolate obtusish parallel : fertile frond pinnate, leafets linear acuminate.

serrulatum (4.) frond pinnate ; leafets lanceolate, tapering to both ends, at the base decurrent, sharp serrate.

Blitum, 25.

capitatum (strawberry blite, W. C. r. J. ☺.) heads in a terminal spike, not intermixed with leaves: leaves triangular toothed.

virgatum (slender blite. P. r. J. ☺.) lateral heads scattered, top ones leafy: leaves triangular toothed.

Boehmeria, 92.

cylindrica (false nettle, round head. C. P. Au. ♃.) leaves opposite ovate-oblong acuminate toothed glabrous: flowers sub-dioecious: staminate spikes glomerate interrupted: pistillate spikes cylindric: stem herbaceous. About 2 feet high.

lateriflora (P. Ju. ♃.) leaves alternate ovate-lanceolate acuminate serrate rough: flowers glomerate lateral: stem herbaceous. Leaves 3-nerved, and on long petioles.

Boletus, 117.

1. *On a stem.*

bovinus (honey-comb toadstool) tubes not touching the stem, unequal in length: pileus thin-edged, brown clammy large; flesh spongy white: stem dirty-white with reddish stains, 7 inches high, and 1 inch diameter.

edulis, tubes not fixed to the stem, readily parting from the pileus; pores circular, small: pileus brown with rust-coloured patches, nearly globular, about 7 or 8 inches across: flesh white, greenish when wounded: stem light brownish-yellow, tapering upwards.

communis, deep scarlet, convex; pores yellow stem reddish-yellow.

rubeolarius, dark-green, hemispherical: pores deep crimson: stem bulbous.

perennis, flattish, tawny with darker zones: pores ochre-brown; stem tawny.

granulatus, viscid, cushion-like : pores round and rather angular, truncate, with the angle granular.
luteus, viscid, cushion-like, deep buff striate : tubes round deep-yellow : stem annulate.
frondosus, greyish-brown, lobed, imbricate, tubes whitish : stem black at the base.
betulinus, pinky-brown, incurved : tubes pure white, short : stem short, black.
substrictus, dirty yellow, convex, thin : pores pale yellow angular : stem dirty yellow, tough.
subtomentosus, yellow, sub-downy : pores sub-angular, tawny : stem yellow.
lateralis, dead yellow, thin smooth, tubes yellow, short : stem yellow, lateral.

2. *Stemless.*

igniarius (touchwood. O.) tubes very slender with fine pores, yellowish changing to red-brown : pileus in the form of a horse's hoof.
versicolor (O.) tubes short minute : pileus thin, velvety, striped with various-coloured concentric circles. Smaller than igniarius.
albidus, white tender, cushion-like.
angustatus, rich purple, zoned, lobed, convex : pores dull yellow.
impuber, rich tawny, convex, crenate-lobed : pores tawny-brown.
fomentarius, cushion-like, uneven, obtuse, brown : pores round, equal, glaucous or rusty
velutinus, irregular, villous, grey or black : tubes brown-yellow : pores pale brown.
labyrinthiformis, kidney-form, wrinkled, zoned, brick-red : tubes red-brown, long.
hepaticus, tubes distinct : thick, soft, red, lobed : pores round, pale yellow.
pectinatus, white or buff becoming brown : tubes oblique, cohering at the base.

Boltonia, 87.

asteroides (false aster. P. w-r. Au. 2'.) leaves very entire : flowers long peduncled : seed oval glabrous sub-awnless.

glastifolia (false chamomile. P. w. Ju. 2.) lower leaves serrate : flowers short-peduncled : seeds obcordate apparently winged pubescent : awns of the pappus two of equal length with themselves.

Borago, 37

officinalis (borage. E. b. Ju. ☺.) leaves alternate : calyx spreading.

africana (E. ☺.) leaves opposite petioled ovate : peduncle many-flowered.

Botrychium, 105.

fumarioides (grape fern. C. P. J.) scape naked, frond glabrous, near the root 3-parted-2-pinnate ; leafets lunate crenate : spikes pinnate.

obliquum (P. J. Ju.) scape below 1-fronded ; frond subdoubly-ternate ; leafets oblong-lanceolate serrulate, dilated at the base unequally heart-form : spikes doubly pinnate. Perhaps only a variety of the last.

dissectum (P. J.) scape below 1-fronded ; frond 3-parted 2-pinnatifid, divisions linear 2-parted at the apex 2-toothed.

virginicum (N. W. C. P. J. Ju.) hirsute : scape in the middle fronded ; frond sub-ternate 3-parted 2-pinnatifid ; leafets gash-pinnatifid, divisions obtuse sub-3-toothed, spikes 2-pinnate divaricate. Large. (rattlesnake fern.)

gracile (C. Y. W. P. A. J.) glabrous : scape in the middle fronded ; frond 3-parted 2-pinnatifid, divisions gash-subpinnatifid acute subtoothed : spikes slender pinnate erect. Smaller.

Brachystemum, 68.

verticillatum (virginian thyme. C. P. w. J. 2/.) leaves lance-ovate, entire; flowers in sessile, compact whorls: bracts acuminate.

lanceolatum (C. P w. Ju. 4.) stem stiffly erect, very branching, roughish: leaves lance-linear, veiny, entire: heads terminal, fascicle-corymbed.

virginicum (O. w. Ju. 4.) stem stiffly erect, very branching, roughish: leaves linear 3-nerved, entire: heads terminal, fascicle-corymbed, nearly level-topped.

Brasenia, see Hydropeltis.

Brassica, 75.

orientalis (perfoliate cabbage. E. ♂.) leaves heart-form clasping glabrous; radical ones entire: silique 4-sided.

napus (kale or cole. E. ♂.) root caulescent fusiform: leaves smooth, upper ones heart-lanceolate clasping, lower ones lyrate toothed. (Rape.)

rapa (turnip. E. ♂.) root caulescent orbicular depressed fleshy: radical leaves rough, cauline ones very entire smooth.

oleracea (common cabbage, including all the varieties caused by culture. E ♂.) root caulescent terete fleshy: leaves smooth glaucous repand and lobate. (esculent cabbage.)

Briza, 32.

canadensis (quake grass. H. C. M. 2/.) panicle lax; spikelets erect 4 to 20-flowered, the common glume smallish; outer valve of the flower acute ovate: leaves long: culm erect.

eragrostis (P. Ju. 4.) spikelets oval-lanceolate

20-flowered. flowers sub-acute : neck of the sheathing leaves pilose : culm geniculate decumbent.

media (P. New-England. M. ♃.) sheath striate, glabrous : panicle erect, spreading ; with the branches in pairs ; spikelets subtriangular : corol equalling the calyx, one valve broad, the other compressed.

maxima (rattlesnake grass. E. ☺.) spike cordate, about 7-flowered. Flowers very large.

Bromelia, 48.

ananas (pine apple. E. ♃.) flowers ciliate-spinose mucronate : spikes comose.

Bromus, 32.

secalinus (chess. O. J. ☺.) panicle nodding ; spikelets ovate compressed : glumes naked distinct ; awns subulate straitish-zigzag. Probably from Europe, common in rye and wheat-fields.

ciliatus (C. W. P. J. ♃.) panicle nodding : spikelets oblong compressed 6 to 8-flowered. florets awned at the margin cilliate-villose : sheaths and both sides of the leaves subpilose : culm bearded at the joints.

pubescens (broom grass. C. P. J. ♃.) culm hairy below. joints brown : stipules very short : panicle at length nodding, pubescent : calyx less than corol. 8 to 12-flowered : corol pubescent, one valve awned beneath the apex.

purgans (C. W. P. Au. ♃.) panicle nodding spikelets lanceolate terete : florets awned pilose, awns erect : leaves glabrous both sides, their sheaths pilose.

Broussonetia, 98.

papyrifera (paper mulberry. E. M. ♄) leaves subcordate, lobate and undivided.

Browallia, 71.

elata (E. b. ☺.) peduncles one or many flowered.

Bryum, 108.

conoideum (thread moss. W.) stem divided: leaves oblong-lanceolate, entire, imbricate, spread: capsule pear-form, erect: lid subulate, curved.

androgynum, nearly simple: leaves ovate-lanceolate, serrate at top, imbricate, spread: capsule oblong, erect: lid conic.

palustre, stem forked: leaves lanceolate, pointed, entire: capsule oblong, oblique: lid conic.

nutans (W.) simple: leaves lanceolate, serrate at top, spread: capsule oblong, pendulous: lid convex.

aureum, simple: leaves bristle-form, entire, zigzag: capsule pear-form, contracted in the middle, pendulous: lid conic, bossed.

carneum, nearly simple: leaves lanceolate, acute, entire, rather remote: capsule pendulous: lid convex, bossed.

capillare, slightly branched: leaves obovate, obtuse, awned, concave, involute when dry: capsule clavate, pendulous.

caespititium, slightly branched; leaves ovate-lanceolate, entire, flat, awned: capsule ovate-oblong, pendulous: lid flat, bossed.

bicolor, slightly branched, very short: leaves ovate-lanceolate, pointed, entire: capsule ovate, pendulous: lid convex, bossed.

argenteum, slightly branched: leaves ovate concave, awned, imbricate, entire: capsule oblong, pendulous.

julaceum, slightly branched: leaves ovate, concave, obtuse, entire, imbricate: capsule clavate, pendulous.

Buchnera, 72.

americana (blue-hearts. P. b. Au. ♃.) leaves lanceolate, 3-nerved, toothed.

Bunias, 73.

maritima (sea rocket. H. C. Ju. ☺.) leaves obovate, sinuate: silicles with two smooth, 1-seeded, toothless joints. Big.

Buphthalmum, 87.

grandiflorum (ox-eye. E. ♃.) leaves alternate, lanceolate, sub-denticulate, glabrous.

Buxbaumia, 109

aphylla (leafless moss) capsule peduncled: leaves none.

foliosa (stemless moss) capsules subsessile: leaves erect linear-subulate, 1-nerved.

Buxus, 93.

sempervirens (box. E. ♄.) leaves ovate, petioled, somewhat hairy at the margin: anthers ovate arrowform. Var. *angustifolia*, leaves lanceolate. Var. *suffruticosa*, leaves obovate, stem hardly woody.

C

Cacalia, 84.

suaveolens (wild caraway. P. w. Au. ♃.) stem herbaceous: leaves petioled halbert-arrowform serrate glabrous one-columned: flowers corymbed erect: calyx many-flowered. From 3 to 4 feet high.

Q

atriplicifolia (orach caraway. P. w. Au. ♃.) stem herbaceous : leaves petioled glabrous glaucous beneath, radical ones cordate toothed, cauline ones rhomboid sub-2-toothed both sides : flowers corymbed erect : calyx 5-flowered. Flowers small.

reniformis (P. w. Au. ♃.) stem herbaceous : leaves petioled glabrous beneath, pilose at the veins : radical ones ample heart-kidneyform repand-toothed ; cauline ones toothed, at the base wedge-form entire : corymbs level-topped : calyx many flowered. From 5 to 10 feet high.

Cactus, 62.

flagelliformis (creeping cereus. E. r. Ju. ♄.) creeping, cylindric, or 10-angled, rooting.

opuntia (prickly pear. Y. P. C. Catskill. y. J. ♃.) proliferous ; compressed and ovate between the isthmusses : bristles fascicular. Flowers large. The plant appears like a series of thick succulent leaves, one growing from the top of another.

Cakile, see Bunias.

Calendula, 88.

officinalis (pot-marygold. E. y. ☉.) seed keeled, muricate, incurved.

Calicium, 112.

strigonelium (fungus lichen.) crust none : puffs sessile, nearly globular, minute, black, with a flattish opake disk, and thin glabrous margin.

turbinatum, puffs turbinate, nearly sessile, black rather polished, with a dot-form disk within the connivent margin.

graniforme, granular leprous greyish-white :

puffs scattered roundish, black, polished, wrinkled, mostly-sessile without border.

Calla, 94.

palustris (water arum. W. C. P. H. w. Ju. 4.) leaves sub-roundish heart-form acute: spathe ovate cuspidate spreading when mature. Grows in wet places.

Callicarpa, 34.

americana (bermuda mulberry. E. r. J. ħ.) leaves oval serrate, tomentose beneath: cymes sessile. Flowers in branches, axillary; berries red very permanent. Southern states.

Callistachia, 26.

virginica (Culver's physic. A. Y. W. C. P. w. Au. 4.) spikes terminal: leaves in fours or fives. Five or six feet high. Very properly separated from the genus Veronica by Mr. Rafinesque.

Callitriche, 25.

verna (water chickweed or starwort. C. P. Y. W. H. w. M. ☺.) upper leaves spatulate obovate, lower ones linear obtuse and emarginate, C. heterophylla.

intermedia (P. w. Ju. ☺.) upper leaves oval; cauline ones linear, 2-cleft at the apex.

autumnalis (Y. P. C. w. S. ☺.) leaves all linear, bifid at the apex: flowers perfect. C. linearis.

brevifolia (C. Au. ☺.) leaves all linear truncate, short, approximate. Small, moss-like.

Caltha, 66.

palustris (American cowslip. O. y. Ap. 4.) stem erect corymbed: leaves heart-kidneyform,

lobes spreading, acute-crenate all around ; floral leaves sub-sessile : petals ovate.

ficaroides (fig cowslip. C. y J. 4.) stem erect 1-flowered, 1-leafed ; radical leaves heart-ovate, very obtuse, few toothed, many-nerved : petals elliptic.

flabellifolia (tooth-leaf cowslip. P. y. J. 4.) stem procumbent : leaves spread-kidneyform ; lobes very spreading, acute and sharp toothed all around : peduncles axillary solitary 1-flowered : petals obovate : capsule hook-beaked. Probably the *dentata* of Muhl.

integerrima (New England. P. y. M. 4.) stem erect corymbed : leaves entire, with a closed sinus, orbiculate-heartform ; floral leaves sessile kidney-form, at the base obsoletely-crenate : petals obovate.

Calycanthus, 41.

floridus (carolina allspice. Southern states. p. M. ½.) divisions of the calyx lanceolate : leaves broad-oval acute, tomentose beneath : branches spreading.

Campanula, 41.

grandiflora (great bellflower. E. 4.) leaves ternate, oblong, serrate : stem 1-flowered ; flower spreading.

rotundifolia (flax bellflower, hair-bell. O. b. Ju. 4.) glabrous : radical leaves kidney-heartform crenate ; cauline ones linear entire : panicle lax few-flowered, flowers nodding. Without particular care the radical leaves will be overlooked.

americana (P. b. J. ♂.) glabrous : leaves heart-form and lanceolate serrate ; lower petioles ciliate : flowers axillary sessile ; corol 5-parted flat, style longer than the corol. Flowers small, 2 or 3 in the axils of the leaves ; from 2 to 3 feet high.

nitida (P. Niagara. b. Ju. ♃.) very glabrous : radical leaves spatulate-oblong leathery cartilaginous, crenate ; cauline ones lanceolate-oblong sub-entire : flowers on branches ; corol bell-wheelform. About a span high.

acuminata (P. w-b. Ju. ♃.) smoothish erect : leaves ovate-lanceolate ending in a long acuminate point, subserrate : spike fascicular many-flowered : corol somewhat wheel-form. Flowers like the *americana*.

erinoides (prickly bellflower. O. w-b. J. ☺.) slender : stem simple angular : angles and the margin and nerve of the leaves with reversed prickles : leaves linear-lanceolate glabrous on the upper side : peduncles few, those on the top of the stem flexuose, axillary ones 1-flowered filiform. Flowers small.

medium (canterbury bells. E. b. Au. ☽.) capsule 5-celled, covered : stem undivided erect leafy : flowers erect.

speculum (venus' looking glass. E. b. Au. ☺.) stem very branching diffuse : leaves oblong, subcrenate : flowers solitary, often destitute of the scales at the base.

perfoliata (clasping bellflower. O. b. J. ☺.) stem simple erect : leaves heart-form crenate clasping : flowers axillary sessile glomerate. Flowers small.

Cannabis, 99.

sativa (hemp. E. g. Au. ☉.) stem pilose : leaves digitate serrate pilose : staminate flowers solitary axillary, pistillate flowers spiked.

Caprifolium, see Lonicera.

Capsicum, 40.

annuum (guinea pepper, E. w. Au. ☺.) stem herbaceous : peduncles solitary.

Cardamine, 75.

impatiens (cuckow flower. E. w. ☺.) leaves pinnate, gashed stipuled: flowers apetalous.

rotundifolia (Whitehills. w. Ju. 4.) stem procumbent, somewhat simple: leaves sub-orbiculate, nearly entire.

pensylvanica (american watercress. O. w. M. 4.) glabrous, branching: leaves innate: leafets roundish-oblong, obtuse, tooth-angled: silique narrow erect.

virginica (P. w. M. 4.) glabrous, erect: leaves pinnate; leafets lanceolate, sub-auricled: silique long strait erect.

teres (New-England. Pursh. w. J. 4.) small erect ramose: leaves all sublyrate-pinnatifid: silique short, terete acuminate.

hirsuta (P. w. M.) leaves without stipules, pinnate; leafets rounded, repand-toothed petioled, with the terminal one oblong, gashed; flowers tetrandrous.

Cardiospermum, 55.

halicacabum (heart-seed. E. Au. ☺.) glabrous: leafets gash-lobate, the terminal one rhomboid. A small climbing plant with small flowers.

Carduus, 83.

pectinatus (comb thistle. P. p. ♂.) unarmed: leaves decurrent: pedunles terminal, very long, 1-flowered, somewhat leafless; flowers nodding after the discharge of pollen: scales of the calyx linear spreading.

Carex, 91.

1. *Stigmas two; spikes dioecious.*

scirpoidea (Can.) solitary spike imbricate, cylindric: capsules densely-pubescent: leaves flat.

sterilis (P. M. 4.) spikes sub-sixfold : fruit ovate compressed 3-sided acuminate, at the apex recurved doubly-cuspidate, margin ciliate-serrate.

2. *Stigmas two : spikes single with staminate flowers at the apex.*

cephalophora (P. J. 4.) spikes aggregated in an elliptical form : fruit ovate, compressed, bifid, margined, ciliate-serrate above.

3. *Stigmas two : spikes several with staminate flowers at the top.*

arenaria (P. C. J. Ju. 4.) spikelets alternate crowded, upper ones staminate, lower ones pistillate, intermediate ones staminate at the apex : capsules ovate margined bifid ciliate-serrate : culm incurved. Generally grows in loose sand near the sea.

bromoides (C. M. 4.) spikelets oblong alternate remotish sessile : capsules oblong acuminate beaked bicuspidate : scales oblong mucronate. On dry land.

retroflexa (P. W. 4.) spikelets somewhat in fours remotish : fruit ovate 2-toothed glabrous at the margin, reflexed spreading : scales oblong-lanceolate. On dry land.

stipata (W. Y. C. P. J. 4.) spikelets somewhat in fives oblong aggregate : fruit spreading ovate acuminate bicuspidate convex-flat nerved : culm 3-sided very rough. On wet land.

muricata (C. P. Ma. J. 4.) spikelets ovate approximate, fruit horizontal ovate plano-convex 2-toothed, margin at the base, which is ciliate-serrate. On wet land.

muhlenbergii (P. Ma. J.) spikelets somewhat in fives ovate alternate approximate : fruit roundish-ovate margined compressed 2-toothed ciliate-serrate ; scales mucronate. On dry land,

multiflora (P. 2.) spikes in narrow panicles oblong obtuse: fruit ovate acuminate bicuspidate: scales ovate mucronate: bracts leafy filiform. On wet land.

sparganioides (P. C. Ma. to Ju. 2.) spikelets many-flowered, somewhat in eights, ovate, subapproximate: fruit ovate compressed margined bifid, the margin ciliate-serrate horizontal. On wet ground.

divulsa (C. P. J. Ju. 2.) spike somewhat branched at the base; spikelets ovate approximate, lower ones remotish: fruit erectish ovate planoconvex 2-toothed margined, the margin glabrous. On wet ground.

rosea (P. 2.) spikelets somewhat in fours remote: fruit ovate acuminate 2-toothed, at the margin ciliate-serrate horizontal: scales ovate obtuse: bract leafy at the base of the lower spike. On dry land.

paniculata (P. Ju. 2.) spikes panicled; fruit ovate, margined above, 2-toothed, the margin ciliate-serrate: culm 3-sided. On wet land.

4. *Stigmas two: spikes several with pistillate flowers at the top.*

leporina (C. P. J. 2.) spikelets in threes roundish-elliptic alternate compact: fruit elliptic compressed acuminate entire at the orifice, or mouth.

scirpoides (W. P. Ma. Ju. 2.) spikelets somewhat in fours approximate elliptic: fruit ovate 2-toothed compressed, at the margin ciliate-serrate, erect: scales elliptic obtuse. On wet ground.

lagopodioides (C. J. Ju. 2.) spikelets in twelves, alternate elliptic obtuse approximate: fruit ovate-lanceolate margined bicuspidate: bract leafy very long at the base of the last spike. On wet ground.

ovalis (C. J. 2.) spikelets somewhat in sixes

roundish-elliptic alternate sub-approximate staminate beneath : fruit ovate margined 2-toothed ciliate-serrate. On wet ground.

scoparia (P. C. Ma. to Ju. ♃.) spikelets somewhat in fives alternate elliptic obtuse sub-approximate : fruit ovate-lanceolate margined bicuspidate : bracts oblong mucronate. Common on wet and dry land.

curta (C. J. ♃.) spikelets somewhat in sixes alternate approximate cylindric : fruit ovate plano-convex acutish ; at the mouth entire, erect, longer than the scales, which are ovate acute. On wet land.

remota (P. J. ♃.) spikelets alternate remote : bracts leafy very long somewhat appendaged : fruit ovate, acuminate bifid sub-compressed.

festucacea (W. P. Ma. J. ♃.) spikelets somewhat in eights sub-approximate alternate cylindric, the fruit-bearing ones club-form : fruit roundish-ovate beaked 2-toothed, at the margin ciliate serrate greater than the scales, which are lanceolate mucronate. Common on dry land.

5. *Stigmas two : staminate and pistillate flowers mostly on distinct spikes.*

saxatilis (Vermont. J. ♃.) pistillate spikes in pairs oblong, the lower one peduncled : fruit elliptic obtuse equalling the oblong obtuse scale : bracts oblong clasping, sub-foliaceous at the apex : culm glabrous.

caespitosa (Y. W. P. Ma. J. ♃.) pistillate spikes cylindric obtuse, somewhat in threes, distant, exsertly-peduncled, lower one very short, fruit ovate obtuse, perforated at the mouth, larger than the oblong obtuse scale : leaves spreading. On wet land. (Staminate spike sometimes single.)

crinita (Y. W. C. P. J. Ju. ♃.) staminate spikes in

pairs : pistillate ones in fours, distant, peduncled, pendulous, cylindric : fruit roundish-elliptic, ventricose, very short-beaked, at the orifice entire, shorter than the oblong awned scale. A variety, *paleacea*, has cylindric spikes, the staminate ones several; peduncles long, reclined : bracts leafy, distant : scales terminated with long serrate sharp points : capsules roundish emarginate at the orifice : culm lax.

acuta (P. C. J. Ju. ♃.) staminate spikes in pairs or in threes ; pistillate ones somewhat in fours sub-peduncled, a little nodding, cylindric, remote : fruit oblong with a very short beak, at the orifice entire perforated, it nearly equals the oblong acute scale.

6. *Stigmas three: spikes with staminate flowers at the top.*

fraseri (P. Ap. ♃.) spike simple ovate : fruit ovate-subglobular, at the orifice entire, longer than the oblong scale : leaves lanceolate undulate crenulate : scape sheathed at the base. On dry land.

wildenowii (P. Ma. J. ♃.) spike simple : fruit alternate oblong, terete-3-sided, rough, acuminate : scales ovate acuminate ; the lowest apex leafy. On wet land.

polytrichoides (P. W. J. ♃.) spike simple ; fruit oblong-lanceolate compressed-3-sided obtuse emarginate : scales oblong obtuse emarginate. On wet ground. C. microstachia. Michaux.

pedunculata (Y. P. Ma. to Ju. ♃.) spikes somewhat in fours, peduncled, much branched : fruit obovate 3-sided obtuse ; scales oblong obtuse mucronate. On dry ground.

ovata (Can. ♃.) spikes somewhat in fives peduncled ovate pendulous : fruit obovate, acute at both ends ; scales ovate acute equalling the capsule.

7. *Stigmas three : the terminal spikes pistillate, the others androgynous.*

virescens (C. P. Ma. 4.) the androgynous spike linear-peduncled, staminate florets below ; the pistillate ones sub-approximate, in pairs, sub-peduncled, linear : fruit globular-3-sided, obtuse, pubescent. On dry land.

hirsuta (P. Ma. J. 4.) androgynous spikes oblong obovate, staminate florets below : the pistillate ones remotish, sub-ternate, sub-sessile, oblong : fruit ovate very obtuse, obtusely 3-sided : leaves and sheaths hirsute. On dry hills.

buxbaumii (C. P. Ju. Au. 4.) androgynous spikes peduncled obovate : staminate florets below ; pistillate ones sub-ternate, remote, sub-peduncled : fruit elliptic, 3-sided obtuse, obsoletely 2-toothed, nearly equalling the oblong mucronate scale. On wet ground.

trichocarpa (New-England. P. J. 4.) androgynous spikes in threes : pistillate ones in pairs peduncled erect, cylindric remote ; fruit ovate, acuminate, bicuspidate, pilose, longer than the awned ovate-lanceolate scale. On damp land.

8 *Stigmas three : the stamens and pistils on distinct spikes ; the staminate spikes solitary, the pistillate ones sessile or having an inclosed peduncle.*

varia (W. A. C. Ma. J. 4.) pistillate spikes somewhat in threes, sub-approximinate, sessile, sub-globular : fruit sub-globular 3-sided, beaked 2-toothed, pubescent, shorter than the oblong scale : culm erect. On dry land.

subulata (C. 4.) pistillate spikes somewhat in fours, very remote, sessile ; staminate one sessile : fruit subulate, divaricate, reflexed : culm slender : leaves flat.

marginata (P. C. Ap. Ma. ♃.) pistillate spikes somewhat in pairs, approximate, sub-globular, sub-sessile: fruit globular, tomentose, 2-toothed, larger than the oblong-ovate scale: radical leaves of one year longer than the culm. Common on dry land.

vestita (W. P. C. J. ♃.) staminate spike lanceolate; pistillate ones ovate, in pairs sessile approximate: fruit ovate, beaked, at the orifice oblique, pubescent, nearly equalling the acute ovate scale. On wet land.

lentaculata (Y. W. C. P. J. Ju. ♃.) pistillate spikes in threes with inclosed peduncles, ovate subapproximate: bracts very long leafy: fruit ovate, ventricose, nerved very long-beaked, at the orifice 2-toothed, longer than the lanceolate mucronate scale. On wet land. A variety, *rostrata*, has the beak very large and long.

miliaris (Vermont. Ju. ♃.) pistillate spike generally solitary sessile, ovate: bract bristle-form: fruit globose glabrous. On damp land.

lupulina (Y. W. C. P. J. to Au. ♃.) pistillate spikes in threes with enclosed peduncles, oblong approximate: bracts very long, leafy: fruit ovate ventricose nerved, with a very long conic beak, at the orifice bicuspidate, several times longer than the mucronate ovate scale. On damp land.

flava (P. J. ♃.) pistillate spikes somewhat in threes, sub-approximate, elliptic with an inclosed peduncle: fruit ovate, reflexed, beak longer than the ovate lanceolate scale, the beak curved 2-toothed. On wet land.

oligocarpa (W. C. P. Ma. ♃.) pistillate spikes in pairs, somewhat 4-flowered, the lower nolets peduncled, fruit roundish-3-sided, obovate, beaked, at the orifice entire, longer than the mucronate oblong scale.

folliculata (W. P. C. J. Ju. ♃.) pistillate spike subsolitary, sub-6-flowered, sub-exsert-peduncled:

fruit ovate ventricose nerved beaked, at the orifice 2-parted, longer than the ovate scale. A variety, *major*, has the fruit more swollen.

pubescens (P. Ma. ♃.) pistillate spikes in fours, sessile, the lowermost florets exsert-peduncled: fruit ovate-3-sided pubescent beaked 2-toothed, longer than the oblong mucronate scale: culm and leaves pubescent. On damp land.

9. *Stigmas three: the stamens and pistils on distinct spikes; staminate spikes solitary; pistillate ones long-peduncled, the sheaths shorter.*

plantaginea (O. Ma. J. ♃.) pistillate peduncled spikes in fours, distant: fruit elliptic, 3-sided, pedicelled, glabrous, shorter than the cuspidate oval scale: bract sheathing sub-foliaceous at the apex, radical ones lanceolate nerved. On dry ground.

anceps (C. P. J. ♃.) pistillate spikes in threes remote, lower ones peduncled: fruit ovate nerved, at the orifice membranaceous, longer than the mucronate oblong scale. On wet ground.

granularis (P. Ma. to Ju. ♃.) pistillate spikes in threes remote, the two lower ones peduncled: fruit globular-ovate nerved ventricose, very short-beaked, at the orifice obsoletely-emarginate, longer than the ovate-lanceolate scale. On dry land.

conoidea (P. J. ♃.) pistillate spikes in pairs remote: the upper one sub-sessile, the lower one long-peduncled: fruit oblong-conic obtuse equalling the awn scale. On dry ground.

Ietanica (P. Ma. J. ♃.) pistillate spikes in pairs remote, the upper one sub-sessile, the lower one long-peduncled: fruit obovate, recurved at the apex, at the orifice entire, longer than the obtuse ovate scale. Common in dry ground.

laxiflora (P. C. Ap. Ma. ♃.) pistillate spikes in threes, 6 to 8-flowered, distant; lower one

remotely peduncled, fruit oblong ventricose obtuse, larger than the mucronate ovate scale. On dry land.

hystericina (P. J. Ju. ♃.) staminate spike solitary, scales ovate-oblong sub-mucronate; pistillate spikes cylindric in pairs, the lower one peduncled, fruit ovate many-nerved beaked, at the orifice bifid, longer than the awned oblong scale. On wet land.

distans (P. J. Ju. ♃.) pistillate spikes in threes oblong distant, the last one sessile, the others peduncled fruit ovate acuminate bicuspidate, nearly equalling the acuminate ovate scale. On wet land.

flexuosa (P. J. ♃.) pistillate spikes somewhat in fours, remote, filiform, peduncled, nodding: fruit distant, alternate, oblong, beaked, bifid, twice as long as the mucronate ovate scale. On wet land.

digitalis (P. ♃.) pistillate spikes somewhat in threes remote filiform peduncled nodding: fruit elliptic obtuse, longer than the oblong-lanceolate scale.

10. *Stigmas three: the stamens and pistils on distinct spikes; staminate spike solitary, pistillate ones peduncled; sheaths scarcely any.*

umbellata (C. P. Ma. ♃.) pistillate spikes in threes peduncled, 8-flowered, ovate, whorled: fruit ovate pubescent, beaked, at the orifice entire, equalling the ovate-lanceolate scale. On dry land.

miliacea (P. C. Ju. ♃.) pistillate spikes in threes filiform, the highest sub-sessile, the others peduncled: fruit ovate 3-sided short-beaked, at the orifice entire, longer than the awned emarginate oblong scale. On wet land.

pseudo-cyperus (P. J. Ju. ♃.) pistillate spikes in fours with the peduncles in pairs, pendulous

cylindric: fruit ovate-lanceolate bicuspidate reflexed equalling the bristle-form scale. Common on wet land.

11. *Stigmas three: the stamens and pistils on distinct spikes: staminate spikes many.*

recurva (P. J. 2.) staminate spikes in pairs; pistillate ones cylindric, somewhat in threes, peduncled, pendulous: fruit elliptic, obtuse, often roughish, equalling the ovate cuspidate scale. On wet ground.

pellita (P. C. J. Ju. 2.) staminate spikes in pairs; pistillate ones in pairs cylindric, erect, remote, upper one sessile: fruit ovate bifid, pilose, shorter than the awned oblong scale. Common on wet land.

lacustris (P. C. J. Ju. 2.) staminate spikes in fours; pistillate ones in pairs erect cylindric peduncled: fruit oblong many-nerved beaked bifurcate, longer than the mucronate oblong scale. On wet land. A large variety is called *gigantea*.

vesicaria (P. Ma. to Ju. 2.) staminate spikes in threes; pistillate ones somewhat in pairs, peduncled, cylindric: fruit oblong-inflated, beaked, bicuspidate, larger than the lanceolate scale, culm acutely 3-cornered. On wet land.

bullata (P. J. 2.) staminate spikes in threes; pistillate ones in pairs, cylindric, peduncled, erectish: fruit obovate-globular, beaked, bifurcate; the beak hispid and longer than the lanceolate scale. Common on wet land.

Carpinus, 95.

americana (hornbeam. O. g. M. ½.) leaves oblong-ovate, acuminate, unequally serrate: scales of the strobile 3-parted, the middle division with a lateral tooth.

Carthamus, 83.

tinctorius (false saffron. E. y. J. ☉) leaves ovate, entire serrate-aculeate.

coerulius (blue saffron. E. b. ♃.) stem about 1-flowered: leaves lance-ovate, spine-toothed.

Carum, 47.

carui (caraway. E. w. ♄.) stem branching: leaves with ventricose sheaths: partial involucre none.

Cassia, 56.

senna (Egyptian senna. E. ☉.) leaves in 6 pairs; petioles glandless: legume reniform.

marilandica (senna. O. y. Au. ♃.) somewhat glabrous: leaves in 8 pairs, lance-oblong, mucronate: flowers in axillary racemes and in terminal panicles: legumes linear curved. An excellent cathartic. See Barton's Med. Bot.

chamaecrista (cassia, partridge pea. H. Y. C. P. y. Au. ☉) somewhat glabrous: leaves linear in many pairs, the glands or the petioles subpedicelled: petals with 2 spots: legumes pubescent. A most elegant plant, from 8 to 16 inches high.

fasciculata (C. P. y. Ju. ☉.) somewhat glabrous: leaves at the summit in 9 pairs: fascicles many-flowered, lateral: petals and stamens of the same colour: legumes glabrous, ascending arched.

nictitans (C. P. New-England. Pursh. y. Ju. ☉.) spreading, pubescent: leaves in many pairs, linear; glands of the petioles pedicelled: peduncles short, supra-axillary, 2 or 3-flowered; flowers petandrous. The leaves of this species and of the chamaecrista possess a considerable degree of irritability.

Castanea, 95.

americana (chesnut. O. g. J. ♄.) leaves lance-oblong, sinuate-serrate, with the serratures mucronate, glabrous both sides. Large tree.

pumila (chinquapin. C. P. g. J. ♄.) leaves oblong, acute, mucronate-serrate, with white down beneath. Small tree.

Catalpa, 26.

syringaefolia (catalpa tree. P. w. & p. Ju. ♄.) leaves cordate, flat. An elegant tree.

Caucalis, 45.

mauritania (base parsley. E. ☉.) general involucre 1-leaved, partial one 3-leaved.

Caulophyllum, 48.

thalictroides (poppose root, false cohosh. O. p-y. Ap. ♃.) very glabrous : leaves more than decompound ; leafets oval, the lower ones petioled and lobed, the end ones 3-lobed.

Ceanothus, 41.

americanus (New-Jersey tea. O. w. J. ♄.) leaves ovate acuminate, serrate, 3-nerved, pubescent beneath : panicles axillary long-peduncled, sub-corymbed.

Celastrus, 41.

scandens (false bittersweet, staff tree. O. y-w. J. ♄.) stem twining : leaves oblong, acuminate, serrate : racemes terminal. Retains its scarlet berries through the winter, though dry and generally opening by valves.

Celosia, 42.

cristata (cock's crest. E. Ju. ☉.) leaves oblong-ovate: peduncles terete, sub-striate: spikes oblong.

Celtis, 44.

occidentalis (nettle tree. C. P. w. M. ♄.) leaves ovate, acuminate, equally serrate except near the base; scabrous above, rough-haired beneath: fruit solitary.

crassifolia (hag-berry, hoop-ash. C. P. w. M. ♄.) leaves ovate, acuminate, unequally serrate, unequally cordate at the base, sub-coriaceous: peduncles about 2-flowered.

Cenchrus, 29.

echinatus (hedgehog grass. P. Au. ☉.) spike oblong, conglomerate: involucre sub-globose, 10-parted.

tribuloides (C. P. Ju. ☉.) spike glomerate, with alternate spikelets: pistillate glumes globose, muricate-spinose, hirsute.

Centaurea, 88.

solstitialis (New-Jersey. Pursh. y. Ju. ☉.) calyx palmate-spinose, solitary; spines strait: leaves hoary, lance-linear, decurrent, entire; radical ones lyrate.

cyanus (blue-bottle. Naturalized. b. Ju. ☉.) scales of the calyx serrate leaves linear entire; lower ones toothed.

scabiosa (scabious centaury. E. ♃.) leaves pinnatifid, roughish; divisions lanceolate, spreading, acute, and pinnatifid at the base: calyx ciliate.

centaurium (great centaury. E. 2.) leaves pinnate glabrous; leafets sharply and doubly serrate, decurrent: calyx smooth.

jacea (knapweed. P. p. Ju. 2.) leaves lanceolate, entire; radical ones sub-dentate: branches angular, calyx scarious.

suaveolens (yellow sultan. E. ☺.) leaves lyrate-pinnatifid: calyx smooth.

benedicta (blessed thistle. E. ☺.) leaves semidecurrent, tooth-spinose: calyx with branched spines.

moschata (sweet sultan. E. ☺.) leaves slightly pinnatifid; lower divisions mostly entire: calyx smooth.

Centaurella, see Bartonia.

Cephalanthus, 34.

occidentalis (button bush. O. g. Ju. ♄.) leaves opposite, and in threes. In swamps.

Cerastium, 60.

vulgatum (mousear chickweed. O. w. Ap. ☺.) hirsute, viscid, cespitose: leaves ovate: petals oblong, about equal to the calyx: flowers longer than the peduncle.

semidecandrum (Y. P. w. M. ☺.) hirsute, viscid: leaves ovate-oblong, acute: petals emarginate, shorter than the calyx: peduncles longer than the calyx: flowers pentandrous.

arvense (A. P. w. J. 2.) pubescent, cespitose: leaves lance-linear, obtuse, ciliate at the base, shorter than the distance between the joints of the stem: petals obcordate, twice as long as the calyx: leafets of the calyx obtuse.

dichotomum (P. w. ☺.) leaves lanceolate: stem dichotomous: capsules erect, twice as long as the calyx.

viscosum (P. w. M. ♃.) hirsute, viscous, diffuse; leaves lance-oblong, obtusish: petals obovate, scarcely longer than the calyx: flowers shorter than the peduncle.

tenuifolium (P. w. M. ♃.) very slender, pubescent, cespitose: leaves narrow-linear, longer than the distance between the joints of the stem: petals obovate, emarginate about thrice as long as the acute calyx.

Ceratophyllum, 93.

demersum (hornwort. C. P. Ju. ♃.) leaves 8 in a whorl, dichotomous in pairs, tooth-spined on the back: flowers axillary: fruit 3-spined.

Cercis, 56.

canadensis (red bud, judas tree. P. Can. r. M. ♄.) leaves round-heartform, acuminate: stipules minute: legumes short-stiped.

Cerinthe, 36.

major (honey wort. E. ☉.) corols obtuse, spreading; at the top ventricose, bellform: stamens shorter than the corol.

Cetraria, 116.

islandica (iceland lichen. Y.) greenish chesnut, sinuate-laciniate many-cleft; segments ascending, channelled, ciliate: targets nearly marginal, chesnut, slightly margined.

lacunosa, (O.) expanded, rounded-lobed becoming vaguely lacinate, rough-netted, callular, greenish-white: targets raised, nearly marginal, a little tumid, rust-coloured, with a thin sub-entire border.

juniperina, membranous, pale yellow, deep yellow

beneath ; jagged-laciniate, segments flat, ascending, complicate, crose-crenate, curled, naked : targets raised, nearly marginal, bay, with a thin yellow crenulate border.

Chaerophyllum, 46.

procumbens (chervil. P. w. M. ☺.) seeds shining, smooth : leaves decompound : stem procumbent : umbels few-flowered.

claytoni (poison cicily. O. w. J. 4.) leaves oblong-oval, sub-pinnatifid-lobed : umbels few-rayed, divaricate : fruit smooth. This plant can hardly be distinguished from the *myrrhis dulcis*, except by the taste. Doct. Bigelow says, the latter plant loses its aromatic taste in some soils ; and he suspects they may be varieties of the same species.

Chaerophyllum, see Myrrhis.

Chara, 90.

vulgaris (feather-beds. P. Ju. ☺.) stem and branches naked at the base ; branchlets terete ; leaves jointed : leafets oblong subulate : bracts shorter than the berry.

foliosa (P. Ju. ☺.) stem naked, papillose above ; branchlets terete at the base and in the leafy joints : leaves linear : bracts shorter than the berry.

flexilis (P. Au. ☺.) stem translucent, naked : branchlets jointless, leafless, compressed : berries lateral, naked.

Cheilanthes, 104.

vestita (lip fern. W. 4.) frond doubly pinnate, hairy both sides ; leafets pinnatifid.

Cheiranthus, 75.

cheiri (wall-flower, E. J. 4.) leaves lanceolate,

acute, glabrous: branches angled: stem somewhat of a woody texture.

fenestralis (waved wall-flower. E. ♄.) leaves crowded together in a head, recurved undulate: stem undivided.

annuus (stock july-flower. E. Ju. ☉.) leaves lanceolate, subdentate, obtuse, hoary: silique cylindric with an acute apex.

incanus (brompton stock, brompton queens. E. ♄.) leaves lanceolate, entire, obtuse, hoary: silique truncate compressed at the apex, stem somewhat of a woody texture.

Chelidonium, 63.

majus (celandine. O. y. M. ♃.) umbels axillary, peduncled: leaves alternate, pinnate, lobed.

Chelone, 72.

glabra (snakehead. O. w. & r. Ju. ♃.) leaves opposite, lance-oblong, acuminate, serrate; spikes terminal, dense-flowered. Some authors make a species *obliqua*, which, they say, has all the leaves opposite, and that the glabra has the lower leaves alternate—sed quere?

Chenopodium, 44.

bonus-henricus (english mercury. E. g. J. ♃.) leaves triangular saggitate entire, spikes compound leafless axillary.

rubrum (rusty pigweed. H. W. r-g. Ju. ☉.) leaves triangular-cordate, obtusish, sinuate-toothed: racemes erectish, compound, sub-foliaceous, shorter than the stem.

album (pigweed. O. g. Ju. ☉.) leaves rhomboid-ovate, crose, entire behind, the upper ones oblong entire, seeds smooth.

viride (green pigweed. P. g. S. ☉.) leaves lance-

rhomboid sinuate-toothed : racemes ramose, subfoliaceous : stem very green.

hybridum (W. Y. C. g. Ju. ☉.) leaves cordate, angled-acuminate : racemes branching, divaricate naked.

botrys (oak-of-jerusalem. O. g. Au. ☉.) leaves oblong, sinuate : racemes naked many-cleft. Sweet scented.

ambrosioides (sweet pigweed. C. P. g. Ju. ☉.) leaves lanceolate, toothed : racemes leafy simple. Sweet scented.

anthelminticum (wormseed. Y. C. P. g. Au. ♃.) leaves ovate, oblong, rarely toothed racemes leafless : styles 3. Odour strong and disagreeable.

maritimum (sea pigweed. C. P. Y. g. Au. ☽.) leaves subulate, fleshy, semiterete : flowers glomerate, axillary. On the sea-coast.

glaucum (C. ♃.) leaves ovate-oblong, repand, glaucous beneath ; racemes naked, simple, glomerate.

scoparium (summer cypress. E.) leaves flat, lanceolinear, margin ciliate : flowers glomerate, axillary.

CHIMAPHILA, 56.

maculata (spotted winter-green. O. w. Ju. ♃.) leaves lanceolate, rounded at the base, remotely serrate, marked with long spots : scape 2 or 3-flowered ; filaments woolly.

umbellata (prince's pine, bitter wintergreen. O. r-w. Ju. ♃.) leaves wedge-lanceolate, with an acute base : scape corymbed : filaments glabrous. Pursh says the *maculata* is the sipsisewa of the Indians, and is useful in hysteric affections. General Varnum says the *umbellata* is the sipsisewa or pipsisewa, and is highly efficacious in the cure of cancers. Both are taken from the genus Pyrola.

Chionanthes, 26.

virginica (fringe tree. C. P. w. M. ♄.) panicle terminal, trifid : peduncles 3-flowered : leaves acute. Berries purplish blue.

Chironia, 39.

angularis (American century. P. p. Au. ☿.) erect : leaves ovate, clasping, flowers with long peduncles, corymbed : divisions of the calyx lance-linear : stem with 4 margined angles.

gracilis (P. r. Ju. ☿.) slender: branches lax elongated, 1-flowered : leaves oval-linear : divisions of the calyx linear about equalling the corol : divisions of the corol obovate : stem angular.

chloroides (C. P. r. Au. ☿.) weak : leaves lanceolate, erect: branches few, 1-flowered ; flowers 7 to 13-parted : divisions of the calyx linear, shorter than the divisions of the corol.

stellaris (C. r. Au. ☿.) erect : branches dichotomous, elongated, 1-flowered : leaves lanceolate, acute : calyx subulate : divisions of the corol obovate : stem terete.

calycosa (C. P. r. Au. ☿.) erect, leafy : leaves oblong-obovatish : flowers solitary, about 7-parted ; calyx leafy, exceeding the corol, divisions oblanceolate.

paniculata (C. w. Ju. ♃.) erect: leaves lance-linear : panicle many-flowered, brachiate, subfastigiate : calyx subulate : stem 4-cornered.

Chrysanthemum, 85.

leucanthemum (O. J. ♃.) leaves clasping, lanceolate serrate, cut-toothed at the base : stem erect branching.

parthenium (feverfew. E.) leaves petioled, compound, flat ; leafets ovate, gashed ; peduncles branching corymbed : stem erect.

coronarium (garden chrysanthemum. E. Au. ☉.) leaves bipinnatifid, acute, broader outwards: stem branching.

Chrysosplenium, 55.

oppositifolium (golden saxifrage, water-carpet. A. W. P. y-r. M. ♃.) leaves opposite, roundish, slightly crenate, tapering for a little distance to the petiole.

Cichorium, 83.

intibus (succory or endive. O. b. Ju. ♃.) flowers axillary in pairs sessile; leaves runcinate.

endivia (garden endive. E. ♄.) peduncles axillary in pairs: one long 1-flowered, the other short about 4-flowered: leaves oblong, denticulate. Var. *crispum*, has fringed leaves and solitary flowers.

Cicuta, 46.

virosa (water hemlock. E. ♃.) umbels opposite to the leaves; petioles margined, obtuse: leafets ternate, acutely serrate. Root containing a yellow juice.

bulbifera (C. Ju. ♃.) branches bearing bulbs in whorls: leaves fennel-like.

maculata (O. w. Ju. ♃.) serratures of the leaves mucronate: petioles membranaceous, 2-lobed at the apex.

Cimicifuga, 65.

serpentaria (bugbane, black snakeroot, cohosh. Y. C. P. w. Ju. . .) leaves decompound; leafets ovate-oblong, gash-toothed; racemes in wand-like spikes: sometimes monogynious.

Cineraria, 86.

heterophylla (ashwort. P. y. M. ♃.) downy: radical leaves long-petioled, obovate-spatulate, obtusely toothed; the other leaves pinnatifid: peduncles 1-flowered, long, solitary.

Cinna, 25.

arundinacea (indian reed. C.) glabrous: panicle large, many-flowered, capillary: one valve somewhat awned below the apex.

Circaea, 27.

lutetiana (enchanter's nightshade. O. r-w. Ju. ♃.) stem erect: leaves ovate, denticulate, somewhat glabrous. Var. *alpina*, has an ascending stem, leaves sub-cordate, and the calyx membranaceous. This variety is generally considered as a distinct species. But they certainly pass into each other by almost imperceptible gradations.

Cistus, 64.

canadensis (rock-rose, frost plant. H. Y. A. C. P. y. J. ♃.) without stipules, erect; leaves alternate erect linear-lanceolate, flat, tomentose beneath; divisions of the calyx broad-ovate acuminate: capsules shorter than the calyx. At the foot of Pine-rock, New-Haven, the barren plains produce great quantities of this plant. In Nov. and Dec. of 1816, I saw hundreds of these plants sending out broad, thin, curved ice crystals about an inch in breadth from near the roots. These were melted away by day, and renewed every morning for more than 20 days in succession.

Citrus, 64.

aurantium (orange tree. E. w. ♄.) leaves oval acuminate with winged petioles.

medica (lemon tree. E. w. J. ♄.) leaves ovate acuminate, with linear petioles. Var. *limon* (lime tree) bears smaller fruit, which is almost round.

Clathrus, 118.

cancellatus (latticed fungus) pileus resembling lattice-work.

Clavaria, 118.

gyrans (club fungus. W.) cylindric, white, rather taper at the ends : stem capillary, pellucid, simple.

pistillaris, nearly cylindric, mostly undivided, tubular, brittle, smooth.

capitata, head ovate, chesnut, dotted, stem simple, yellow, round ; root voivate.

cornea (Y.) simple or cloven, somewhat pointed, red orange, horny and brittle when dry.

muscoides (shrubby fungus, W. y.) much branched : branches mostly forked, pointed unequal, yellow.

Claytonia, 42.

virginica (spring beauty. Y. C. w. & r. Ap. ♃.) leaves lance-linear : raceme solitary : leaves of the calyx acutish : petals obovate, retuse : root tuberous.

spatulata (spring beauty. W. H. P. A. w. & r. Ap. ♃.) leaves spatulate : raceme solitary : leaves of the calyx obtuse : petals roundish, retuse : root tuberous.

Clematis, 66.

viticella (purple virgin's bower. E. p. Ju. 4.) climbing: leaves compound and decompound; leafets oval sublobate entire: petals obovate spreading.

viorna (leather flower. P. b. J ½.) climbing: leaves compound and decompound; leafets lance-oval, acute at both ends, trifid and entire: flowers solitary, belliform: petals thick leathery, acuminate.

virginica (virgin's bower. O. w. Ju. ½.) climbing: leaves ternate; leafets ovate, subcordate, gash-toothed and lobate: corymbs dichotomous, few flowered: petals longer than the stamens. Often dioecious.

flammula (sweet virgin's bower. E. ½.) lower leaves laciniate; upper ones simple, entire, lanceolate.

ochroleuca (P. C. w. & y. J. 4.) erect, simple, pubescent: leaves simple entire. About one foot high.

hexagona (W. p-b. M. ½.) stem climbing, 6-angled; leaves ternate with climbing petioles; leafets glabrous, heart-ovate acuminate, subentire: seeds caudate, with hairs not plumose. A new species, which I found two miles west of Williams College.

Cleome, 49.

dodecandra (false mustard. P. C. p. Ju. ☺.) glabrous: flowers axillary, solitary: leaves ovate, ternate generally dodecandrous.

pentaphylla (P. w-r. Ju. ☺.) leafets quinate: stem unarmed. Flowers gynandrous. The corols of this genus being cruciform, it is by some placed in the 15th class.

Clethra, 56.

alnifolia (spiked alder, sweet pepper bush. Y. H. C. P. w. Ju. ♄.) leaves wedge-obovate, acute, coarse-serrate above, glabrous both sides: flowers in spike-form racemes.

Climacium, 108.

dendroides (tree moss) having a projecting collar below the outer teeth.

Clinopodium, 70.

vulgare (field thyme. O. r-w. Ju. ♃.) flowers in head-form whorls: bracts setaceous, hispid: leaves above pilose, remotely toothed: stem simple.

Cnicus, 83.

lanceolatus (common thistle. O. p. J. ♉.) leaves decurrent, hispid, pinnatifid; divisions 2-lobed divaricate, spinose: calyx ovate with spiderweb-like pubescence; scales lanceolate, spinose, spreading.

discolor (P. W. p. Ju. ♉.) leaves sessile, pinnatifid, rough-haired, downy beneath; divisions 2-lobed, divaricate, spinose: calyx globose with spiderweb-like pubescence; scales ovate close-pressed, with spreading spines at the tips.

altissimus (tall thistle. C. P. W. w-p. Au. ♃.) leaves sessile, lance-oblong, scabrous, downy beneath, toothed, ciliate; radical ones pinnatifid: calyx bracted, ovate; scales lance ovate, spinose, close-pressed.

arvensis (canada thistle. W. H. C. A. Y. p. J. ♃.) leaves sessile pinnatifid, ciliate, spinose: stem panicled: calyx ovate, mucronate; scales broad-lanceolate, close-pressed, margin woolly.

horridulus (C. P. w-y. Ju. 2.) tall: leaves sessile, pinnatifid, acutely gashed, very spinose: involucre terminal, 1-flowered, many-leaved; leafets very spinose double: calyx unarmed.

muticus (C. P. p. Ju. ☽.) leaves all pinnatifid, woolly beneath; divisions sublanceolate, acute, a little spinose: branches at the summit many, nakedish, 1-flowered: calyx globose; scales not spinose.

Cochlearia, 74

officinalis (scurvy grass. E. w. J. 4.) radical leaves roundish; cauline ones oblong, subsinuate: silicles globose.

armoracia (horse radish. E.w. J. 4.) radical leaves lanceolate, crenate; cauline ones gashed.

Coix, 91.

lachryma (job's tear. E. Ju. ☉.) culm semiterete above: flowers naked: fruit ovate.

Collinsonia, 27.

canadensis (horse balm, rich-weed. O. y. Au. 2.) leaves heart-oval: teeth of the calyx short, subulate, about equal to the tube.

Colutea, 79.

arborescens (bladder senna. E. y. ♄.) leaves oval retuse, banner gibbous, abbreviated: stem woody.

Comarum, 63.

palustre (marsh fivefinger. Y. C. H. P. p. Ju. 4.) leafets in threes, fives or sevens, serrate.

Commelina. 28.

communis (day-flower. Southern states. b. Ju

2.) glabrous: leaves lance-ovate, subsessile, acute: stem creeping: involucres cordate, conduplicate.

erecta (P. b. Ju. 2.) leaves lance-ovate, scabrous: involucres cowled, turbinate: stem erect.

virginica (long-leaved dayflower. P. b. Ju. 2.) leaves lanceolate, sub-petioled, glabrous above, sheaths sub-pubescent: stem simple, creeping.

Comptonia, 92.

asplenifolia (sweet fern. O. g. Ap. ½.) leaves long-linear, alternately crenate-pinnatifid. Gives a pleasant resinous odour.

Conferva, 111.

1. *Filaments simple.*

fontinalis (spring greenhair, frogspittle. O.) filaments closely compacted, very short, equal, without visible partitions.

nitida, splendidly lubricrous: joints rather long, cylindric, with double spiral lines of carpogenation.

capillaris, round, rigid, curled, entangled, brittle: joints cylindric, short, with pellucid partitions: tubercles sessile.

limosa, thin, short, mucous, closely compact, greenish-blue, with indistinct partitions.

muralis, thin, fascicled, rather rigid, with obsolete partitions and very short joints.

2. *Filaments branched.*

rubra, branchlets bristle-form, forked at top: joints pellucid in the middle, a little contracted at the partitions; capsules globular, lateral.

litoralis, much branched, thin, closely entangled, with pointed segments: joints cylindric, short, with dark partitions.

fluviatilis (river greenhair. O.) divisions rather rigid, mostly alternate, tapering to both ends: joints long, dilated 2-ways, partitions warty, swelled.

amphibia, slightly jointed, entangled: branches spread remote: branchlets uniting into needle-like points when dry: partitions a little contracted: capsules nearly oval.

crispata, forked, capillary, closely inflected: joints oblong, with a spiral line, alternately compressed when dry: partitions very thin.

fracta, much branched, entangled divaricate: older joints oblong, younger ones cylindric: capsule roundish.

glomerata, branches alternate; branchlets one-way, fascicled pencil-form: joints cylindric, rather long: partitions pellucid.

gelatinosa, much branched, moniliform, slippery; branchlets thin, pencil-form, somewhat whorled: joints short: partitions obscure: capsules roundish, among the branchlets.

diaphana, much branched, forked at the ends: joints swollen at each end, diaphanous in the middle; partitions obsolete: capsules globular, lateral.

Conium, 46.

maculatum (poison hemlock. W. Y. H. C. P. w. Ju. 4.) stem very branching, spotted: leaves very compound: seeds striate.

Conostylis, 50.

americana (weed-grass. C. y. Ju. 4.) corol woolly within: scape corymb-panicled: leaves grass-ensiform, glaucous: filaments equal,

Convallaria, 51.

1. *Corols bellform.*

majalis (lily of the valley. E. w. Ju. ♃.) scape naked, smooth : leaves ovate.

2. *Corols funnel-form.*

angustifolia (2-flowered solomon seal. P. y-w. M. ♃.) stem terete : leaves alternate, sessile, lanceoval, sharp, sub-trinerved, glabrous : peduncles axillary, long, about 2-flowered.

canaliculata (clasping solomon seal. P. W. w. Ju. ♃.) stem channelled : leaves alternate, clasping, oblong, margin pubescent : peduncles axillary, about 2-flowered. C. polygonatum.

pubescens (C. New-England. w. M. ♃.) stem teretish, deeply furrowed : leaves alternate, clasping, ovate, pubescent beneath : peduncles axillary about 2-flowered.

multiflora (giant solomon seal. O. w. Ju. ♃.) stem terete : leaves alternate, clasping oblong-oval : peduncles axillary, some of them many-flowered.

umbellulata (wild lily of the valley. W. P. y-w. J. ♃.) leaves radical, oblong-oval, margin and keel ciliate : scape pubescent : umbel terminal ; pedicels bracted.

latifolia (P. J. ♃.) stem angled : leaves sessile, ovate, acuminate : peduncles one or many-flowered. Very tall.

3. *Corols wheel-form.*

racemosa (spiked solomon seal. O. y-w. M. ♃.) stem with alternate leaves : leaves sessile, oblong-oval, acuminate, nerved, pubescent : flowers in a terminal raceme-panicle.

stellata (W. C. P. w. M. ♃. stem with alternate, clasping, lanceolate leaves: raceme simple, terminal. 8 to 12 inches high.

ciliata (Can. w. J. ♃.) stem arched: leaves sessile, ovate ciliate: panicle terminal, crowded. Flowers very small.

trifolia (P. C. w. J. ♃.) stem with three alternate pubescent, lance-oblong leaves: raceme terminal, lax.

bifolia (dwarf solomon seal. O. w. Ju. ♃.) stem with two heart-oblong, sub-sessile, glabrous leaves: raceme simple, terminal: flowers tetrandrous.

Remark. The above genus has been divided, and the new genera, Smilacina and Polygonatum taken from it. Vid. Pursh, page 232 and on.—It is true that artificial characters have been assumed which are constant and distinct. Any natural genus may be divided in the same way. But I never knew artificial characters applied in making such unnatural and unnecessary havoc in a genus containing such a natural assemblage of plants. Some of the species most nearly related are separated, and those least related are kept together; as the umbellulata and racemosa.

Convolvulus, 38.

arvensis (bind-weed. P. New-England. w. Ju. ♃.) twining glabrous: leaves sagittate, both lobes and apex acute: peduncles about 1-flowered: bracts minute, remote from the flower.

sepium (field bind-weed. O. w. & r. J. ♃.) twining: leaves sagittate, with the apex acute and the lobes truncate entire (some obtuse): bracts acute, longer than the calyx and shorter than the middle of the corol: peduncle exceeding the angle of the petal.

panduratus (mechoacan. C. P. w. & r. Ju. ♃.) twining, pubescent: leaves broad-cordate, entire or lobed: guitar-form; peduncles long;

flowers fascicled: calyx glabrous, awnless: corol subulate bellform.

batatas (sweet potatoe, carolina potatoe. Southern states. w-r. Ju. 4.) creeping, tuberous: leaves cordate, hastate, angular-lobed, 5-nerved, smoothish: peduncles long; flowers fascicled: corol subcampanulate.

jalapa (jalap. Southern states. w. J. 4.) pubescent: leaves cordate, entire and lobed, rugose-plaited, downy beneath: peduncles 1 to 3-flowered: flowers sub-campanulate: root very thick.

stans (dwarf morning glory. C. Y. w. J. 4.) erect downy: leaves lance-oblong, acuminate, cordate, hind-lobes obtuse: peduncle 1-flowered, long: bracts ovate, acute: stem floriferous below.

repens (C. r. & w. 4.) leaves sagittate, obtuse behind: stem creeping geniculate: peduncle 1-flowered.

sagittifolius (arrow bindweed. C. r. J. 4.) climbing, glabrous: leaves thick, with roundish-obtuse sinuate lobes; the odd one larger, emarginate: peduncles 1-flowered; corol short subcampanulate.

spithameus (A. P. w. J. 4.) erect, pubescent; leaves heart-oval, obtuse: peduncles 1-flowered shorter than the leaves; bracts ovate, acute stem floriferous above. Grows plentifully in Cambridge, Washington co.

tricolor (3-coloured bindweed. E. Ju. ☉.) leaves lance-ovate, glabrous: stem declined: flowers solitary.

Convolvulus, see Ipomaea.

Conyza, 85.

bifrons (plowman's wort. P. y. Ju. 4.) subglutinous: leaves clasping spatulate-oblong, acute, serrate: corymbs of the panicle glomerate.

marilandica (camphor plant. C. r. Au. ☉.) pubescent : leaves sessile, broad-lanceolate acute, serrate : corymbs terminal, level-topped, partly leafless : scales of the calyx subulate-mucronate : flowers short.

Coptis, 66

trifolia (gold-thread. O. w. M. ♃.) scape 1-flowered : leaves ternate. Helleborus trifoliatus.

Coreopsis, 88.

tripteris (tickseed sunflower. C. P. A. y. ♃.) glabrous : leaves opposite, petioled, lanceolate, entire ; radical ones pinnate, cauline ones ternate : rays entire : seeds obovate, naked at the apex.

trichosperma (C. y. Au. ☿.) glabrous ; dichotomous : leaves opposite, quinate-pinnate, lanceolate serrate : outer leafets of the calyx (8) spatulate, ciliate serrate : rays entire : seed wedge-form, about 4-toothed.

dichotoma (C. y. Ju. ☉.) stem glabrous, nakedish and dichotomous above : leaves mostly alternate, undivided, entire, narrowing into the petiole : seed obovate 2-bristled, scabrous, with a torn margin.

alternifolia (P. y. & w. Au. ♃.) stem winged : leaves lanceolate, acuminate, subpetioled, serrate : flowers corymbed ; ray-florets lanceolate.

Coriandrum, 45.

sativum (coriander. E. w. J. ☉.) fruit globose calyx and style permanent.

Cornicularia, 116.

tristis (horned lichen.) blackish-brown : branches cylindric-compressed, ascending, flat-topped, dark above : orbs black-brown, becoming convex, slightly radiate.

spadicea, chesnut-brown : branches plano-compressed slightly pitted, zigzag, toothletted : orbs spinous-radiate, becoming convex, rust-brown.

lanata, decumbent, warty, brownish-black, much branched ; branches cylindric, intricate, short, many-forked : orbs black-brown, with a granular-radiate margin.

Cornus, 35.

canadensis (dogweed. H. W. C. A. P. N. w. M. 4.) herbaceous : leaves at the top, whorled, veiny : involucres ovate, acuminate : fruit globose. About 6 inches high. Berries red.

florida (false box, dogwood tree. O. w-y. M. ♄.) leaves ovate, acuminate : involucres 4, very large, somewhat obcordate, and appear like petals : fruit ovate. Size between shrub and tree. Berries red. Involucres white, very showy, but the corols are obscure.

mascula (cornelian cherry. E. ♄.) umbels equalling the involucre.

sanguinea (red osier. N. W. C. P. w. J. ♄.) branches strait : leaves ovate, both sides pubescent and coloured alike : cymes spreading. About 10 feet high. Berries dark-brown. Anthers yellow.

alba (white dogwood. O. J. ♄.) branches recurved ; branchlets glabrous : leaves ovate, acute, pubescent, hoary beneath : cymes depressed. About 10 feet high, with red branches. Berries blueish-white.

sericea (P. C. Vermont. w. J. ♄.) branches

spreading ; branchlets woolly : leaves ovate, acuminate, rusty-pubescent beneath : cymes depressed, woolly. About 7 feet high. Berries bright blue.

alternifolia (C. P. w. M. ♄.) branches warty : leaves alternate ovate, acute, hoary beneath : cymes depressed, spreading. About 18 feet high. Berries purple.

circinata (C. P. w. J. ♄.) branches warty : leaves broad-oval, acuminate, white-downy beneath : cyme much spread. About 8 feet high. Berries blue.

stricta (C. P. w. Ju. ♄.) branches strait, fastigiate : leaves ovate, acuminate, glabrous, colour nearly alike both sides : panicled-cyme convex.

paniculata (bush dogwood. O. w. J. ♄.) branches erect : leaves ovate, acuminate, glabrous, hoary beneath : flowers in a thyrsed cyme. About 6 feet high. Berries white, globular flattened.

CORYDALIS, 78.

cucullaria (colic weed. O. y. & w. M. 4.) stemless : corol 2-spurred : scape naked ; raceme simple, one-sided : nectaries of the length of the corol : style inclosed : root bulbous. Leaves more than decompound. All the specimens, which were found by my class at Williams College, were hexandrous. They had also a 2-leaved bract so near the calyx, as to give the appearance of a 4-leaved calyx.

fungosa (climbing colic weed. P. C. Catskill. Plainfield, (Mass.) r-w. J. ♁. stem climbing : leaves cirrose : racemes axillary, corymbed, nodding : corol monopetalous gibbous both sides of the base, thick and fungus-like.

glauca (P. N. C. W. y-r-g. J. ♁.) corol 1-spurred : stem branching, erect : leaves glaucous ; cauline ones biternate : raceme subcorymbed : bracts minute : silique linear, thrice

as long as the peduncle. Grows 3 or 4 feet high two miles north of Williams College.

formosa (C. Can. r. M. ♃.) scape naked: raceme somewhat compound, nodding, many-flowered: nectaries very short, incurved: style extended: divisions of the leaves oblong, gash-pinnatifid: root tuberous: flowers 2-spurred.

aurea (P. y. M. ☉.) stem branching, diffuse; leaves doubly-pinnate; leafets divided, lance-linear, acute at both ends: racemes one way: bracts broad-lanceolate, subdenticulate: silique terete, thick, twice as long as the peduncle.

Corylus, 95.

avellana (filbert. E. Ap. ♄.) stipules oblong, obtuse: calyx of the fruit campanulate, spreading at the apex, torn-toothed: leaves round-cordate, acuminate. Var. *maxima*, has a gash-toothed calyx: nut depressed-ovate.

americana (hazel nut O. Ap. ♄.) leaves broad-cordate: calyx of the fruit hispid with glandular heads at the ends of the hairs, campanulate, longer than the roundish nut, limb spreading, tooth-serrate.

rostrata (beaked hazel. O. Ap. ♄.) leaves oblong-ovate, acuminate: stipules lance-linear: calyx of the fruit bell-tubular, 2-parted, divisions gash-toothed; elongated beyond the nut into a beak.

Crataegus, 62.

coccinea (thorn bush. O. w. M. ♄.) thorny: leaves heart-ovate, gash-angled, glabrous, acute-serrate: petioles and calyx pubescent, glandular: petals orbicular: styles 5. Var. *viridis*, has lance-ovate leaves, subtrilobate: stem unarmed. Vid. Persoon, Part II. page 36. The berries are large red and pleasant tasted.

pyrifolia (pearleaf thorn. C, P. w. J. ♄.) thorny or unarmed leaves oval-ovate, gash-serrate, somewhat plaited and rather rough-haired : calyx a little villose ; leafets lance-linear, serrate : flowers with 3 styles.

populifolia (C. P. w. J. ♄.) thorny : leaves heart-ovate, truncate at the base, gash-angled, glabrous : petioles and calyx without glands : styles 5. Berries small, red.

elliptica (P. M. ♄.) thorny : leaves oval, unequally serrate, glabrous : petioles and calyx glandular : divisions of the calyx obtuse : berry globose 5-seeded.

glandulosa (P. Can. w. M. ♄.) thorny : leaves wedge-obovate, angled, glabrous, shining : petioles, stipules and calyx glandular : berries oval, 5-seeded.

flava (yellow-berried thorn. Vermont. M. ♄.) thorny ; leaves wedge-obovate, sublobate, crenate-serrate : petioles short : stipules cordate glandular : calyx glandular : flowers subsolitary : berry 4-seeded, turbinate.

punctata (P. w. M. ♄.) thorny or unarmed : leaves wedge-obovate, subplicate, glabrous, gash-serrate, decurrent into the petiole : calyx villose, divisions subulate entire : berry subglobose, depressed.

crus-galli (thorn tree. O. w. M. ♄.) thorny : leaves wedge-obovate, sub-sessile, shining, leathery : corymbs compound : leafets of the calyx lanceolate, subserrate : styles 2.

oxyacantha (quickset. E. w. M. ♄.) leaves obtuse somewhat 3-cleft, serrate, glabrous : peduncles and calyx somewhat glabrous : segments of the calyx lanceolate, acute ; styles 2.

Crocus, 27.

officinalis (saffron. E. y. 4.) leaves linear with revolute margins : stigma exsert, with long li-

near segments. Var. *sativus*, having violet corols.

Crotolaria, 78.

sagittalis (rattle-box. Y. N. C. P. y. Ju. ☉.) hirsute, erect, branching: leaves simple lance-oblong: stipules lanceolate, acuminate decurrent: racemes opposite to the leaves, about 3-flowered: corol less than the calyx.

parviflora (P. C. y. J. ☉.) hirsute, erect, branching: leaves simple, lance-linear: stipules above decurrent with two short teeth: racemes opposite to the leaves: corol smaller than the calyx.

Cucubalus, 59.

behen (bladder campion. C. P. H. w. Ju. 2.) glabrous, glaucous, decumbent: leaves oblong-oval, acute, nerveless: calyx inflated-membranaceous, veiny.

stellatus (A. Y. C. P. w. Ju. 2.) pubescent, erect: leaves whorled, in fours, lance-oval, very long-acuminate. About 2 or 3 feet high.

Cucumis, 97.

colocynthis (bitter apple. E. ☉.) leaves many-cleft: pomaceous berry globose, glabrous. Fruit very bitter.

anguria (prickly cucumber. E.) leaves palmate-sinuate: fruit globose, echinate.

anguinis (snake cucumber. E. ☉.) leaves lobed: pomaceous berry cylindric, very long, smooth, contorted plaited.

melo (musk-melon. E. y. Ju. ☉.) angles of the leaves rounded: pome oblong, torulose. Sweet scented.

sativus (cucumber. E. y. Ju. ☉.) angles of the

leaves strait : pomaceous berry oblong, scabrous. Brought from Asia.

africanus (wild cucumber. W. y-w. Au.) fruit oval, echinate : leaves palmate, sinuate : stem angled. This plant grows plentifully on the banks of the Hoosack, near Williams College. It is evidently indigenous. The stem is 5-cornered, climbing by dichotomous and trichotomous tendrils : the pistillate flowers generally solitary ; the staminate in panicled racemes.

CUCURBITA, 97.

ovifera (egg-squash. E. ☉.) leaves cordate, angled-5-lobed, denticulate, pubescent : pomaceous berry with fillet-like stripes lengthwise.

verrucosa (club squash. E. y. J. ☉.) leaves cordate, deeply 5-lobed ; middle lobe narrowed at the base, denticulate : pomaceous berry clavate, a little warty.

melopepo (flat squash. E. y. J. ☉.) leaves cordate, obtuse, sub-5-lobed, denticulate : pomaceous berry depress-based, swelled at the margin.

pepo (pumpkin. E. y. Ju. ☉.) leaves cordate, obtuse, sub-5-lobed, denticulate : pomaceous berry roundish or oblong, smooth. Var. *potiro* has the fruit more or less flattened. From Asia.

citrullus (water melon. E. y. Au. ☉.) leaves 5-lobed ; the lobes sinuate-pinnatifid, obtuse : pomaceous berry oval smooth. Fruit watery, often striped. From Africa, and the south of Asia.

lagenaria (gourd, calabash. E. w. Au. ☉.) leaves cordate, round-obtuse, pubescent, denticulate ; with 2-glands at the base on the under side : pomaceous berry clavate somewhat woody.

Cunila, 69.

mariana (dittany. C. P. r-b. J. ♃.) leaves ovate, serrate, sessile : corymbs terminal, dichotomous.

Cunila, see Hedeoma.

Cuphea, 60.

viscosissima (waxweed. P. p. J. ☉.) viscous : leaves opposite, petioled, ovate-oblong : flowers with 12 stamens, lateral, solitary, peduncles very short.

Cupressus, 96.

disticha (cypress tree. C. Ap. ♄.) leaves 2-ranked flat, deciduous : staminate flowers in leafless panicles : strobiles sub-globose. A large tree.
thyoides (white-cedar. C. H. M. ♄.) branchlets compressed : leaves imbricate four ways, ovate, tubercled at the base : strobile globular.

Cuscuta, 43.

americana (dodder. O. w. Au. ☉.) flowers peduncled, umbelled, 5-cleft. A bright yellow leafless vine, twining around other weeds in damp places. In some parts of New-England it is called gold-thread vine.

Cyathus, 118.

striatus (tunnel fungus.) dark brown, villous, striate within.
crucibulum, inflated, golden, glabrous.
laevis, yellow, inflated, smooth within.
lentiferus, (A.) pale, roughish, mouse-colour without.

Remark. This genus is wrongly called the bridsnest under the generic name.

Cymbidium, 89.

pulchellum (grass pink. O. r. Ju. 4.) leaves radical, ensiform, nerved : scape few-flowered : lip erect, slender at the base ; lamina spread ; disk concave bearded.

hyemale (adam and eve P. C. g-p. M. 4.) leaves radical, in pairs, many-nerved : scape simple, sheathed, erect : petals erect ; the 3 exterior ones lanceolate, the inner ones oblong : lip obovate, wavy-crenate at the margin. A cement may be made of the bruised roots.

corallorhizum (coral root. W. w-y. M. 4.) scape sheathed, leafless : flowers pedicelled : petals lanceolate ; the two lower ones lanceolate-linear, deflected : lip oblong acute. A yellowish-white plant with a white coral-like root.

odontorhizum (toothed coral. W. C. P. p. Ju. 4.) scape sheathed, leafless : flowers pedicelled ; petals lanceolate, equal : lip ovate, obtuse. Resembling the last in habit. These two species are found in great plenty near Williams College. Their distinctive characters are clear and decided ; notwithstanding the random assertions of a reviewer, who seems fond of judging without examination.

Cynanchum, 90.

obliquum (choak-dog. P. p. Ju. 4.) stem twining, hirsute : leaves cordate, acute, villose : flowers umbelled : petals oblique, revolute. Pursh says, he doubts its being an American species.

Cynara, 82.

cardunculus (cardoon. E. 4.) leaves spinose, all pinnatifid : scales of the calyx ovate.

scolymus (garden artichoke. E. 4.) leaves subspinose, pinnate : scales of the calyx ovate.

Cynoglossum, 37.

officinale (hound tongue. P. W. A. H. N. C. p. J. ♂.) very soft-pubescent: leaves broad-lanceolate, sessile: panicled-racemes.

amplexicaule (W. C. P. w. &. b. J. ♃.) very hirsute: leaves oval-oblong; upper ones clasping: corymbs terminal, leafless, long-peduncled.

Cyperus, 29.

1. *Spikelets aggregate.*

kyllingoeoides (C. J. ♃.) little heads globose: spikelets oblong, convex, about 8-flowered: involucre 4-leaved: leaves keeled, lax.

poaeformis (C. Y. W. g-p. Au. ♃.) spikelets oblong, flat, fascicle-corymbed; fascicles sessile and peduncled: involucre 3-leaved, very long.

uncinatus (Vermont. J. ♂.) little heads sub-globose, glomerate: spikelets linear, about 8-flowered; valves lanceolate, recurve-acuminate: involucre about 2-leaved, very long.

2. *Umbels with elongated rays; spikelets terminal, umbelled.*

compressus (P. Ju. ♃.) spikelets digitate, about in fours, lance-oblong, valves mucronate, broad, membranaceous.

filiculmis (C. ♃.) spikelets linear, head-globular, much spread: umbels about 1-rayed: involucres and culm setaceous, involucers 3-leaved.

tenuis (C.) umbel terminal, simple: involucre 3 or 4-leaved, longer than the spikelets, rough at the apex: peduncles unequal: spikelets lanceolate, alternate, yellow, acute, 10 to 17 flowered, bracted at the base.

brizeus (C. Ju. ♃.) spikelets oblong-ovate, obtuse: umbels crowded, leafless: leaves narrow.

inflexus (P. Ju.) umbels 3-leaved, simple: spikes

3, ovate, one sessile, the others peduncled, conglomerate ; spikelets oblong, green, compressed, 7-flowered : plant sweet-scented.

diandrus (C. Au.) culm obtusely 3-cornered ; umbels sub-radiate : spikes crowded, capitate : each spike lance-oblong, many flowered (14 to 16) glumes acutish, carinate : stamens 2 : styles bifid : seed ovate compressed. Torrey. A new species, discovered by J. Le Conte, Esq. on the borders of salt marshes..

3. *Umbels with elongated rays ; spikelets alternate.*

flavicomus (P. g-y. Ju. ♃.) spikelets lance-linear : valves oblong obtuse ; fruit-bearing, spreading : involucre very long.

phymatodes (P. Au. ♃.) umbels simple or decompound, rayed : involucre 3 to 9-leaved, unequal ; three of the leafets very long, scabrous at the margin : peduncles compressed : spikelets 2-ranked linear ; lower ones compound, upper one simple, 15-flowered : bracts linear.

erythrorhizus (P. Au. ☉.) umbel decompound, 3-leaved ; umbellets mostly wanting : involucre 3 to 6-leaved, very long, scabrous : spikelets alternate, linear, approximate, long, horizontal, 12-flowered, terete-compressed.

parviflorus (P. Au.) umbel compound : involucre 3-leaved, longer than the peduncles : peduncles glabrous, many (6 to 10) 3-sided : spikelets 3, compressed, alternate, ovate, 8-flowered.

flavescens (C. P. Au. ♂.) spikelets lance-linear, crowded : involucre 3-leaved, longer than the 3-cleft umbel.

strigosus (C. W. Y. P. g-y. Au. ♃.) spikes oblong, lax ; spikelets subulate spreading, remotish : involucres nearly wanting : rays of the umbellets alternate.

virens (P. Ju. ♃.) spikes corymbed; spikelets oval: involucre very long.

tuberosus (nut-grass. P. Ju. ♃., spikelets lance-linear, convexish: involucre 3-leaved, longer than the 5-rayed umbel.

4. *Umbels with short rays; spikes digitate.*

æstuarius (C.) stem 3-cornered: umbel lax, subradiate, rays short: spikes 3 to 5-fingered, lance-linear: 7 to 10-flowered, compressed: glumes lance-acute: stamens 2: style bifid: seed oblong obtuse compressed. A new species discovered and described by Dr. John Torrey. Grows in salt marshes.

CYPRIPEDIUM, 89.

candidum (white ladies' slipper. P. w. M. ♃.) stem leafy; leaves lance-oblong: lobe of the style lanceolate, obtusish: lip compressed, shorter than the lanceolate petals.

parviflorum (C. P. y-g. M. ♃.) stem leafy: lobe of the triangular style acute; outer petals oblong-ovate, acuminate; inner ones linear, contorted: lip shorter than petals, compressed.

pubescens (yellow ladies' slipper. W. P. C. y. M. ♃.) stem leafy: lip of the style triangular-oblong, obtuse: outer petals oblong-ovate, acuminate; inner ones very long, linear, contorted: lip compressed, shorter than the petals.

spectabile (gay ladies' slipper. W. A. C. P. w. & p. J. ♃.) stem leafy: lip of the style oval-cordate, obtuse: outer petals broad-ovate obtuse: lip longer than the petals.

humile (low ladies' slipper. O. w. & p. M. ♃.) scape leafless 1-flowered: radical leaves in pairs, oblong, obtuse: lip of the style round-rhomboid, acuminate, deflexed; lip longer than the lanceolate petals, split before.

D.

Dactylis.

glomerata (orchard grass. O. J. ♃.) panicle one-sided, glomerate.

Dalibarda, 63.

repens (New-England. P. w. J. ♃.) villose: having creeping shoots: leaves simple, cordate, crenate: peduncles 1-flowered.

fragarioides (dry strawberry. W. P. y. M. ♃.) leaves ternate: leafets wedge-form, gash-serrate, ciliate: peduncles many-flowered: tube of the calyx obconic.

Daphne, 54.

mezereum (mezereon. E. M. ♄.) flowers sessile, cauline, in threes: leaves lanceolate.

odora (sweet mezereon. E. w. Ap. ♄.) having many flowers in little terminal heads; leaves scattered, lance-oblong, glabrous.

Datisca, 100.

hirta (false hemp. P. y. ♃.) stem hirsute: leaves pinnate; leafets running together at the base. Flowers small, panicled.

Datura, 38.

stramonium (thorn apple. Y. A. H. C. P. w-b. Au. ☉.) pericarps spinose, erect, ovate: leaves ovate, glabrous. Odour very disagreeable.

tatula (C. P. w. Ju. ☉.) pericarps spinose, erect, ovate: leaves cordate, glabrous, toothed.

Daucus, 45.

carota (carrot. E. w. Ju. ♁.) seeds hispid: petioles nerved underside: divisions of the leafets narrow-linear, acute.

Decumaria, 60.

sarmentosa (decumary. Southern states. w. Ju. ♄.) leaves ovate, acute; rounded at the base, serrate at the apex. A climbing shrub, growing in swamps.

Delphinium, 65.

consolidum (larkspur. E. b. Ju. ☺.) nectaries 1-leaved: stem subdivided.

ajacis (rocket larkspur. E. b. Au. ☺.) nectary 1-leaved: stem simple.

exaltatum (P. b. Ju. ♃.) nectary 2-leaved; lip oblong 2-cleft; divisions lanceolate, equal: leaves 3-parted, divisions 3-cleft.

azureum (Southern states. b. M. ♃.) stem stiffly erect: leaves linear, many-cleft: flowers spiked: petals very downy: spur arched.

staphisagria (E. b. ♂.) nectary 4-leaved, shorter than the petals: leaves palmate, with obtuse lobes.

Dentaria, 74.

diphylla (tooth-root, trickle. O. y. & r. M. ♃.) stem with 2 leaves near each other; which are ternate, ovate-oblong, unequally gash-toothed: root toothed. The root is white, brittle, and has a strong taste resembling the horse-radish.

laciniata (New-England. C. P. p. M. ♃.) leaves in threes, ternate: leafets 3-parted, linear-oblong, gash-toothed: root tuberous, moniliform.

Dianthus, 58.

barbatus (sweet william. E. r. & w. Ju. ♃.) flowers fascicled: scales of the calyx ovate-subulate, equalling the tube: leaves lanceolate.

armeria (pink. New-Jersey? r. Ju. ☺.) flowers

aggregate, fascicled: scales of the calyx lanceolete, villose, equalling the tube.

caryophyllus (carnation. E. r. & w. ♃.) flowers solitary: scales of the calyx subrhomboid, very short: petals crenate, beardless: leaves linear-subulate, channelled. By rich culture the stamens mostly change to petals.

chinensis (china pink. E. Ju. ☉.) flowers solitary: scales of the calyx subulate, spreading, leafy, equalling the tube: petals crenate: leaves lanceolate.

plumarius (single pink. E. r. & w. ♃.) flowers solitary: scales of the calyx subovate, very short and obtuse, awnless: corol many-cleft, with the throat hairy.

Diapensia, 39.

lapponica (Whitehills. Big. w. Ju. ♃.) leaves spatulate, glabrous: anthers oblique, awnless.

cuneifolia (Whitehills. Peck. C. w. J. ♄.) leaves lance-wedgeform, pubescent below: anthers horizontal, beaked at the base.

Dicksonia, 104.

pilosiuscula (fine-haired fern. O.) frond doubly-pinnate; leafets lance-oblong, pinnatifid; division gash-toothed at the upper margin: stem subpilose.

Dicranum, 107.

A. *Leaves 2-rowed, compressed.*

bryoides (fork moss) stem simple: leaves alternate, ovate, oblong, pointed: capsule terminal, erect.

taxifolium, stem simple: leaves oblong-lanceolate, acute: capsule nearly radical, inclined: lid beaked.

adiantoides, erect, branched : leaves ovate-lanceolate, sheathing : capsules inclining from about the middle : lid awl-form, erect.

B. *Leaves pointing one-way, or spreading.*

scoparium, branched, erect : leaves lance-awl-form, spread at top : capsule solitary, oblique, with an awl-form lid.

flagellare, somewhat branched, erect : leaves lance-awlform, nearly nerveless : capsule cylindric, erect, grooved : lid awl-form, incurved.

heteromallum, nearly simple : leaves cutlass-form, capillary, broader at base : capsule obovate, gibbous, inclined : lid awl-form, incurved.

varium, nearly simple : leaves lance-awlform, 1-nerved, spread, zigzag at top : capsule inclined, top-form : lid conic, slightly curved.

pulvinatum, branched : leaves ovate-lanceolate, bearing hairs : capsule ovate, immersed in the leaves, inclined : lid strait-awlform.

glaucum, branched at top : leaves crowded, erect, lanceolate, pointed nerveless : capsule ovate, inclined : lid awl-form, curved.

strictum (W.) forked or branched at top : leaves lance-awlform : capsule cylindric, inclined : lid conic.

virens, slightly branched : leaves linear-lanceolate, pointed, keeled : capsule oblong-ovate, curved, wen-like at base.

polycarpon, branched : leaves linear-lanceolate, twisted when dry : capsule obovate, nearly strait, grooved.

latifolium, erect : leaves oblong dilated, concave, ending in a short hair : capsule cylindric strait.

ambiguum, erect, simple : leaves imbricate 4-ways, ovate-lanceolate, pointed : capsule wen-like, on a long receptacle, ovate, drooping ; lid oblique.

Didymodon, 107.

lineare (double-tooth moss) leaves linear.

Diervilla, 41.

humilis (bush honeysuckle. O. y. Ju. ♄.) peduncles axillary and terminal, dichotomous, 3-flowered: leaves ovate, serrate, acuminate. D. canadensis. Variable in size.

Digitalis, 72.

purpurea (foxglove. E. p. Ju. ☿.) leafets of the calyx ovate, acute: corol obtuse: upper lip entire: leaves lance-ovate, rugose.

Digitaria, 30.

sanguinalis (finger-grass. O. g-p. Ju. ☺.) spikes many: flowers imbricate, in pairs: sheaths and leaves papillose-pilose: culm creeping.

paspaloides (C. P. Au. ☺.) spikes in pairs, subvillose at the base: rachis broadish, glabrous: flowers solitary, imbricate two ways, glabrous: leaves spreading; sheaths glabrous, villous at the neck: culm creeping.

pilosa (C. P. Au. ☺.) spikes from 2 to 5, erect, filiform: flowers remote, hirsute, in pairs, with one of them scarcely pedicelled: leaves short; sheaths pilose: culm erect, glabrous, naked above.

dactylon (P. Au. ♃.) spikes digitate, spreading, villose at the bases within: flowers solitary: shoots creeping. A new genus, Cynodon, is made of this species by Richard.

Dilatris, 28.

tinctoria (red-root. C. y. Ju. ♃.) petals lanceolate, downy outside: panicle corymbed, downy: leaves long, naked, linear.

Dionaea, 57.

muscipula (Venus' flytrap. Southern states. w. Ju. ♃.) radical leaves with a terminal appendage. somewhat resembling a rat-trap. This is suddenly closed, on being irritated.

Dioscorea, 100.

villosa (yam-root. P. C. J. ♃.) leaves alternate opposite and whorled, cordate acuminate pubescent beneath, 9-nerved, nerves lateral simple.
glauca (P. J. ♃.) leaves glaucous. Muhl.

Diospyros, 100.

virginiana (persimon, seeded plum. C. P. w-v. M. ♄.) leaves ovate-oblong, acuminate glabrous reticulate-veined; petioles pubescent: buds glabrous.

Diphascum, 107.

foliosum (bladder mouth.) leaves linear, acuminate.

Dipsacus, 35.

fullonum (teasel. E. w. Ju. ☉.) leaves sessile, serrate: chaff hooked.
sylvestris (wild teasel. P. Sheffield, Mass. Ju. ☉.) leaves connate sinuate: chaff strait: head involucred.

Dirca, 54.

palustris (leather-wood, moose-wood. W. P. N. A. v. Ap. ♄.) leaves oval: flowers axillary, ☿ or ♂ in a hairy, bud-like involucre.

Dodecatheon, 38.

meadia (false-cowslip. P. p. M. 4.) leaves oblong-oval, repand-toothed: umbels many-flowered, lax: bracts oval.

integrifolium (P. b. J. 4.) leaves spatulate, entire: umbels few-flowered strait: bracts linear.

Dolichos, 79.

purpureus (cowhage, or cowitch. E. p. ☺.) twining, stem glabrous: petioles pubescent: corol with spreading wings.

Doronicum, 86.

nudicaule (leopard's bane. P. y. J. 4.) stem nearly leafless: in some the peduncles are divided at top: leaves decussate opposite oblong-ovate.

Draba, 73.

verna (whitlow grass. C. P. w. Ap. ☺.) scape naked, leaves oblong acute sub-serrate, rough-haired: petals bifid: stigma sessile.

caroliniana (C. p. w. Ap. ☺.) scape naked: leaves oval acute, very hirsute: silicles long-linear, glabrous, approximate.

arabisans (P. New-England. M. ♄.) stem leafy, somewhat branched: radical leaves wedge-lanceolate; cauline ones lanceolate; all acute, divaricate-toothed: silicles acuminate with the permanent style.

Dracaena, 50.

borealis (wild lily of the valley, or dragoness plant. P. A. C. W. g. y. J. 4.) subcaulescent: leaves oval-obovate, margin ciliate; scape pubescent:

umbel corymbed, sometimes proliferous: pedicels naked, nodding. Mr. Rafinesque says this is the same as the Convallaria umbellulata. I have no doubt he is correct. And I now regret, that I admitted this genus.

Dracocephalum, 70.

virginianum (dragon-head. P. p. Au. ♃.) spikes elongated, with the flowers crowded: bracts subulate: teeth of the calyx nearly equal, short; leaves linear-lanceolate, serrate.

canariense (balm of gilead herb. E.) flowers spiked: leaves ternate oblong.

denticulatum (P. p. Ju. ♃.) spikes elongated, with remote flowers: bracts subulate: teeth of the calyx nearly equal: leaves obovate-lanceolate, toothed above.

Dracontium, see Pothos.

Drosera, 48.

rotundifolia (sundew. O. y-w. Au. ♃.) scape simple; leaves nearly orbicular, narrowed at the base; petioles long downy.

longifolia (Y. P. C. y-w. Ju. ♃.) scape simple; leaves spatulate-obovate; petioles long, naked.

filifolia (C. p. J. ♃.) scape somewhat branched; leaves filiform, very long.

Dulichium, 29.

spathaceum (galingale. O. g-y. Ju. ♃.) culm 3-cornered, leafy: spikelets spreading, about 6-flowered.

E.

Echinops, 88.

sphaerocephalus (globe thistle. E.) leaves pinnatifid: stem branching.

Echium, 37.

vulgare (viper's bugloss, blue thistle. C. P. b. Ju. ♂.) stem tuberculate-hispid: cauline leaves lanceolate hispid; flowers spiked, lateral.

Elephantopus, 88.

carolinianus (elephant-foot. Southern states. r. Au. ♃.) leaves radical and cauline oblong, narrowed at the base, pilose on both sides: stem simple, erect, pilose.

Eleusine, 31.

indica (dog-tail grass, wire grass. C. P. Ju. ☉.) glabrous: sheaths compressed, pilose at the neck: spikes digitate, long-linear strait; spikelets about 6-flowered: flowers lanceolate.

Elymus, 31.

villosus (wild rye, limegrass. P. C. Ju. ♃.) spikes erect; spikelets 3-flowered, awned, villose, ternate: calyx awned, exceeding the spikelets.

canadensis (P. C. Ju. ♃.) spike nodding, spreading; spikelets 6-flowered, awned; lower ones ternate, upper ones binate.

virginicus (W. P. C. J. ♃.) spike erect; spikelets 3-flowered, awned, glabrous, in pairs: calyx lanceolate, nerved, equalling the spikelets.

striatus (W. P. Ju. ♃.) spike erect; spikelets 2-

flowered, awned, hispid, in pairs : calyx linear, nerved, awned, rather exceeding the spikelets : leaves and sheaths glabrous.

hystrix (P. C. Ju. 4.) spike terminal erect ; rachis scabrous ; spikelets 6 to 9-flowered, diverging : involucre 1 or 2-leaved, lateral, or none.

glaucifolius (C. P. Ju. 4.) spike nodding, somewhat spreading, with a compressed rachis having a pubescent margin ; spikelets ternate below and binate above, 2 and 3-flowered : involucre 4 or 5-leaved.

philadelphicus (P. C. Ju. 4.) spikes nodding, spreading ; spikelets 6-flowered, awned.

Empetrum, 98.

nigrum (black crowberry. Whitehills. Big. Ju. ♄.) procumbent : branchlets glabrous : leaves oblong, glabrous, with a revolute margin.

Endocarpon, 113.

hedwigii, foliaceous, thickish, with distinct small rounded-angular lobes, dull glaucous-green, white on the margin and underneath, naked both sides.

squamulosus, foliaceous, thickish, somewhat imbricate, grey greenish-brown, beneath grey woolly : lobes clustered, roundish, deformed, repand-lobed, with the margin of the same colour.

lachenus, foliaceous, imbricate, brownish-green, beneath black spongy ; lobes small, a little incumbent, rounded, slightly crenate, flexuous.

miniatus (hidden lichen.) foliaceous, peltate, pale, with minute excavations, beneath smooth fulvous becoming wrinkled, with a spread-lobed circumference.

Epigaea, 57.

repens (trailing arbutus. W. A. P. N. H. r. & w. Ap. ♄.) stem creeping: branches and petioles very hirsute: leaves cordate, entire: corol cylindric.

Epilobium, 54.

spicatum (willow-herb. W. A. P. N. H. C. p. Ju. ♃.) leaves scattered, lance-linear, veiny, glabrous: flowers unequal: stamens declined. This species grows from 4 to 6 feet high.

lineare (Y. W. H. C. w. & r. Ju. ♃.) stem terete, pebescent, wandlike, branched above: cauline leaves opposite, branch leaves alternate, linear, very entire: flowers few, terminal, long-peduncled. Flowers small.

coloratum (P. C. Lake-George. r. Ju. ♃.) stem terete, pubescent, leaves lanceolate, serrulate, petioled, opposite; upper ones alternate, glabrous, red-veined.

tetragonum (W. Y. P. r. Ju. ♃.) stem with prominent subquadrangulate lines: leaves opposite; upper ones alternate, lanceolate, serrulate. Flowers small.

palustre (W. P. Ju. ♃.) stem terete: leaves sessile, lanceolate, sub-denticulate: stigma undivided.

alpinum (Whitehills. w-r. Au. ♃.) stem simple, subterete, 1 or 2-flowered: leaves opposite, oval, entire: flowers sessile. Very minute.

Epipactis, 89.

convallaroides (lily orchis. C. g-p. M. ♃.) stem with 2 round-cordate, acute, opposite leaves: spike few-flowered: lip oblong, dilated at the apex, obtusely 2-lobed: germ sub-globose: root fibrous.

Equisetum, 106.

arvense (horsetail. O. Ap. ♃.) barren stems with simple branches; the branches scabrous, 4-sided: fructification simple: sheaths cylindric gash-toothed, teeth acute.

sylvaticum (O. Ap. ♃.) barren and fertile stems doubly branched: branches scabrous, deflected, 4-sided; branchlets somewhat 3-sided.

uliginosum (C. P. W. M. ♃.) stem subramose: branches generally in fours, 4-sided, glabrous: spike terminal, cylindric.

scirpoides (Can. Vermont. Ju. ♃.) stem simple, ascending, glabrous, filiform, bearing a spike at the top: sheaths 3-toothed; teeth withering, with caducous awns at the apex.

hyemale, (scouring rush. O. Ju. ♃.) stems erect, very scabrous, bearing spikes at the apex: sheaths 2-coloured, withering at the base and apex: teeth with caducous awns.

Erica, 54.

pubescens (downy heath. E. r. M.) corol linear, pubescent, with the limb erect: capsule glabrous: leaves fringed.

tetralix (E. ♄.) anthers awned: corol ovate; style inclosed: leaves in forms, ciliate; flowers in heads.

Erigeron, 86.

canadense (fleabane. pride-weed. O. w. Ju. ☉.) stem hispid, panicled: leaves lance-linear, ciliate: calyx cylindric: rays crowded, short. Flowers small. Plant strong-scented. Powdered leaves useful in stopping blood.

hyssopifolium (P. y. Ju. ♂.) stem panicled with sterile branches; a few extended into naked peduncles: leaves linear, glabrous, ciliate: rays much longer than the cylindric calyx.

strigosum (P. W. w. Ju. ☿.) strigose-pilose: leaves lanceolate, tapering to both ends; in the middle are a few coarse teeth or it is entire: flowers corymb-panicled.

heterophyllum (P. C. w. J. ☿.) radical leaves round-ovate, deeply-toothed, petioled; cauline ones lanceolate, acute, serrate in the middle: corymb terminal.

philadelphicum (O. b-p. Au. ♃.) pubescent: leaves wedge-oblong, rarely gash-toothed; cauline ones half-clasping: stem weak, simple, corymbed above: peduncles elongated, 1-flowered: rays capillary, twice as long as the hemispheric calyx.

purpureum (P. C. p. Ju. ♃.) pubescent: leaves oblong, toothed, clasping; upper ones entire: peduncles thickened, corymbed; lower ones elongated: scales of the calyx hairy on the keel: rays twice as long as the calyx.

bellidifolium (O. b. & w. M. ♃.) hirsute, hoary: radical leaves obovate, subserrate; cauline ones few, distant, lanceolate, entire: stem about 3-flowered: rays long.

nervosum (P. w. Ju. ♃.) white pubescent: leaves lance-linear, very entire, silky, nerved: flowers panicled.

Erinus, 72.

africanus (P. b. Au.) leaves lanceolate, toothed; stem weak, zigzag-erect.

Eriocaulon, 92.

pellucidum (pipewort. Y. C. N. P. H. g. Au. ♃.) scape very slender, about 7-striped: leaves linear-subulate, channelled, glabrous, pellucid, 5-nerved, transversely striate: head small globose: scales of the involucre oval-obtuse. Grows in water from 6 to 12 inches high.

decangulare (tall pipewort. P. C. S. ♃.) scape 10-striped : leaves ensiform, glabrous : heads large, depressed-globose : scales of the involucre ovate, acute : chaff of the receptacle mucronate. Three or four feet high.

Eriophorum, 29.

virginicum (cotton grass. C. P. M. ♃.) culm terete, leafy : leaves flat : spikes crowded, subsessile, shorter than the involucre. In bog-meadows, as all the following species are.

angustifolium (W. Y. C. M. ♃.) culm leafy, terete : leaves 3-sided, channelled : spikes peduncled : seeds ovate.

polystachium (C. P. M. ♃.) culm leafy, terete : leaves flat : spikes peduncled : seed ovate.

Erodium, 76.

ciconium (stork-bill geranium. E. ☺.) peduncle many-flowered : leaves pinnate : leafets pinnatifid, toothed : petals oblong, obtuse : stem ascending.

cicutarium (hemlock geranium. P. p. A. ☺.) peduncles many-flowered : leaves pinnate ; leafets sessile, pinnatifid, gashed : corol larger than the calyx : stem prostrate hirsute.

moschatum (musk geranium. E. ☺.) peduncles many-flowered : leaves pinnate ; leafets subpetioled, oblong, gash-toothed : petals equalling the calyx : stem procumbent.

Eryngium, 44.

ovalifolium (sea-holly. P. C. b. Ju. ♃.) simple : leaves heart-ovate, with very short petioles : heads all peduncled : leafets of the involucre chaffy and 3-cleft : stem wandlike, branching above, not below.

virginianum (P. C. g. & b. Ju. ♃.) very tall: leaves long lance-linear, serrate: branches linear, many-parted: leafets of the involucre longer than the head, chaffy, 3 to 5-cleft: heads panicled.

Erysimum, 74.

officinale (hedge-mustard. O. y. J. ☉.) siliques close-pressed to the rachis of the spike: leaves runcinate.

barbarea (water radish. W. N. y. M. ♃.) lower leaves lyrate, with the terminal lobe roundish; upper leaves obovate, toothed: silique almost square.

Erythronium, 50.

dens-canis (dog-tooth violet, adder's tongue. O. y. Ap. ♃.) leaves oblong-ovate, glabrous, spotted. Scape 4 to 8 inches high.

Esula, 61.

lathyrus (spurge caper. E. J. ☿.) umbel 4-cleft, dichotomous: leaves opposite, entire, lanceolate, pointing four ways.

peplus (wild caper. Ju. ☉.) umbel 3-cleft, dichotomous, involucels ovate: leaves entire, obovate, petioled.

mercurialina (P. Ju. ♃.) stems slender, weak, leaves opposite or in threes, subsessile, oval, entire: peduncles terminal, solitary, 1-flowered.

corollata (C. P. Ju. ♃.) umbel, 5-cleft, 3-cleft, and dichotomous; involucels and leaves oblong, obtuse: appendages of the calyx obovate and resembling petals.

Remark. These species were taken from the genus Euphorbia. See Persoon. This division is very proper. Every one has observ-

ed the unnatural union of the spotted spurge and garden caper.

Ethulia. 84.

uniflora (floating daisy. C. p. Au. ♃.) leaves setaceous-linear, whorled: stem about 1-flowered: egret 5-tooted, bellform.

Euonymus, 41.

atropurpureus (spindle-tree. C. P. p. J. ♄.) leaves petioled, lance-oblong, acuminate, serrate: peduncles divaricate, many-flowered; flowers 4-cleft: fruit smooth. Fruit red.

americanus (burning bush. P. r-y. J. ♄.) branches 4-angled: leaves subsessile, lance-oval, acute, serrate: peduncles about 3-flowered: flowers all 5-cleft: fruit warty-muricate. Fruit red. Said to grow in New-England.

Eupatorium, 84.

1. *Calyxes not more than 5-flowered.*

hyssopifolium (hyssop-thoroughwort, hempweed. C. w. Au. ♃.) leaves opposite, somewhat whorled, linear, entire, pubescent, 3-nerved, punctate; radical ones subdentate. About one foot high.

sessilifolium (P. C. Au. ♃.) leaves sessile, clasping, distinct, lance-ovate, rounded at the base, serrate, very glabrous: stem somewhat glabrous. About two feet high, grows in rocky hills.

truncatum (P. Ju. ♄.) leaves sessile, clasping, distinct, lanceolate, truncate at the base, serrate, somewhat glabrous: stem pubescent. Resembles the last.

album (P. Au. ♃.) leaves subsessile, lance-oblong,

roughish, serrate, inner scales of the calyx long, lanceolate, scarious, coloured. About 18 inches high.

lanceolatum (P. Au. 4.) leaves sessile, distinct, lance-oblong, scabrous, deeply serrate: scales of the calyx one-coloured. Resembles the last.

trifoliatum (C. P. Au. 4.) leaves petioled, in threes or fours, ovate, tapering to both ends, serrate roughish. Tall, not branched.

teucrifolium (New-England. P. C. Au. 4.) leaves sessile, distinct, ovate, scabrous; upper ones with coarse teeth at the base and with the summit entire. About 2 feet high.

gnelissoides (P. Au. 4.) leaves petioled, ovate, obtusish, obtusely-serrate, veiny, somewhat glabrous. Resembles the last.

rotundifolium (P. Au. 4.) leaves sessile, distinct, round-cordate, obtusely-serrate, veiny: scales of the calyx acuminate. About 12 to 18 inches high.

pubescens (C. P. Au. 4.) leaves sessile, distinct, ovate, scabrous, veiny; lower ones doubly-serrate, upper ones subserrate, stem panicled, pubescent; branches fastigiate. Not above two feet high.

altissimum (P. Au. 4.) leaves subsessile, lanceolate, 3-nerved, tapering to both ends, pubescent; lower ones serrate in the middle. From 3 to 7 feet high.

amoenum (C. p. S. 4.) leaves with short petioles, opposite and in threes, lance-oblong, acute at both ends, serrate, sub-glabrous, sub-rugose, net-veined beneath: corymb fastigiate: scales of the calyx oblong, coloured. 2 feet high.

ceanothifolium (C. P. Au. 4.) leaves petioled, ovate, acuminate, toothed, 3-nerved, glabrous. Resembles, in general aspect, the New-Jersey tea.

gracile (slender thoroughwort. C.) stem erect, simple, glabrous below, pubescent above: leaves

opposite, short-petioled, lance-ovate, from the middle upwards serrate, tapering to the base and entire, glabrous above, pubescent at the veins beneath (sometimes lanceolate, entire:) cyme large, peduncled, somewhat lax, pubescent: calyx 5-flowered, scales obtuse. About 4 feet high. A new species by Dr. John Torrey.

laevigatum (smooth hempweed. C.) leaves in fives, lanceolate, petioled, serrate, slender, glabrous both sides: stem hollow, terete, smooth, sub-glaucous: calyx about 5-flowered. Grows 5 or 6 feet high, stem marked with purple lines. Resembles E. purpureum. A new species by Dr. John Torrey.

2. *Calyxes more than 5-flowered.*

purpureum (purple thoroughwort, or joe-pye. O. p. Au. 4.) leaves in fours or fives, petioled, lance-ovate, serrate, rugose-veined, roughish: stem hollow. 5 or 6 feet high.

maculatum (C. P. p. Au. 4.) leaves in fours or fives, unequally serrate, pubescent beneath: stem solid, furrowed. Hardly so tall as the last.

punctatum (P. p. Au. 4.) leaves in fours or fives, petioled, ovate, acuminate, serrate, scabrous both sides: stem solid, terete. Hardly so tall as the last.

verticillatum (joe-pye's weed. O. p. Au. 4.) leaves in threes or fours, lance-ovate, wedge-form at the base, unequally serrate, somewhat glabrous: stem solid, smooth. 4 to 6 feet high.

perfoliatum (boneset, thoroughwort. O. w. Au. 4.) leaves connate-perfoliate, oblong, serrate, rugose, downy beneath: stem villose. About 3 feet high. Excellent in colds and some fevers.

coelestinum (P. b. Au. 4) leaves petioled, heart-ovate, obtusish, 3-nerved, obtusely-serrate: flowers corymbed.

ageratoides (O. w. Au. 4.) leaves petioled, ovate, acuminate, 3-nerved, unequally and coarsely toothed, serrate, glabrous: corymb many-flowered, spreading: calyx simple. About 2 feet high.

Euphorbia, 61.

hypericifolia (spurge. Y. P. Ju. ☉.) dichotomous, glabrous, very branching, erect, spreading: leaves opposite, serrate, oval-oblong, subfalcate: corymb terminal.

maculata (spotted spurge. O. w. Ju. ☉.) erect-spreading: leaves opposite, serrate, oblong, hairy: flowers axillary, solitary: appendages to the calyx coloured. Leaves when young and in dry ground, spotted.

dentata (P. Ju. ☉.) small, hirsute: leaves opposite, oval, dentate: flowers crowded together at the summit. Upper leaves spotted.

polygonifolia (C. P. Ju. 4.) very glabrous, diffused: leaves opposite entire, lance-linear, obtuse: flowers solitary, axillary.

ipecacuanhae (C. P. Ju. 4.) procumbent, small, glabrous: leaves opposite, oboval or lanceolate; peduncles axillary, elongated, 1-flowered. Very long root.

portulacoides (P. Ju. 4.) erect: leaves entire: oval, retuse: peduncles axillary, 1-flowered, equalling the leaves.

Euphorbia, see Esula.

Euphrasia, 71.

officinalis (eyebright. Can. P. w. Ju. ☉.) leaves ovate, obtusely toothed: lower divisions of the lip emarginate.

F.

Fagus, 95.

ferruginea (beech. O. y-w. J. ♄.) leaves ovate-oblong, acuminate, pubescent beneath, coarsely toothed, at the base obtuse, subcordate-oblique: nuts acutely ovate, 3-sided. Middling sized tree.

Fedia, 27.

olitoria (lamb letture. E.) stem dichotomous; leaves lance-linear.

radiata (wild lamb-lettuce. C. P. Ju. ☉.) leaves spatulate-oblong, sub entire: fruit pubescent, about 4-sided, naked at the apex.

Ferula, 45.

canadensis (giant fennel. Y. P.) leaves ternate, more than decompound; leafets ovate, serrate, rigid, veiny: stem, peduncles and umbels villose.

Festuca, 32.

elatior (fescue-grass. C. H. W. P. Ju. ♃.) panicle nodding, very branching, lax; spikelets lance-ovate, acute: florets at first cylindric and closed, spreading in maturity, obsoletely nerved.

poaeoides (Can. Ju. ♃.) panicle somewhat crowded; lower branches simple: spikelets alternate, oblong, subsessile, awnless: leaves flat, very glabrous.

fluitans (water-fescue. C. P. J. ♃.) panicle long, lax; branches simple: spikelets close-pressed, linear-terete, many-flowered; florets awnless, striate: culm decumbent: leaves very glabrous.

nutans (New-England. P. Ju. 2.) branches of the panicle one-way, nodding, scabrous: spikelets ovate, compressed, about 6-flowered, acute, awned: leaves lance-linear.

clandestina (C.) panicle concealed; branches solitary; one spikelet sessile, another pedunculed: leaves with long sheaths, linear, nerved; stipules acuminate.

tenella (C. W. P. Ju. ☺.) panicle very simple, one-way: spikelets about 9-flowered, awned: leaves linear-setaceous; stipules 2-eared: culm 4-sided above, branching at the base.

duriuscula (C. Ju. 2.) panicle one-way, diffuse: florets awned: culm terete: cauline leaves flat: root fibrous.

rubra ? (P. 2.) culm striate, red at the base, pubescent, geniculate, with dark-coloured joints: panicle contracted, erect and a little nodding; rachis 3-sided, zigzag: spikelets lanceolate, terete, pedicelled, having pedicelled florets: leaves very long, with striate glabrous sheaths.

FICUS, 98.

carica (fig tree. E. g. Ju. ♄.) leaves cordate, 3 or 5-lobed, repand-toothed; lobes obtuse, scabrous above, pubescent beneath.

FLOERKEA, 49.

uliginosa (false mermaid. P. w-y. Ap. 2.) leaves alternate; those under water ternate, those above water quinate-pinnate. Nectris pinnata. Pursh.

FLUVIALIS, 90.

fragilis (river-nymph. P. S. ☺.) leaves opposite or in threes, linear-subulate, recurved, aculeate-toothed, rigid. In water.

flexilis (C. P. Au. ☺.) leaves in sixes, linear, denticulate at the apex, spreading. Flowers very small.

Fontinalis, 109.

capillacea (water moss.) leaves acute, linear-awl-form, spread, longer than the capsule : sheath and peduncles long, filiform.

antepyretica, stem branched, 3-sided : leaves lanceolate, acute, keel-form, nerveless, 3-rowed ; sheath-leaves obtuse : lid awlform.

Fothergilla, 65.

alnifolia (fothergill's bush. Southern states. w. Ap. ♄.) leaves wedge-obovate, crenate-toothed above. Var. *major*, has ovate-oblong leaves, subcordate. Var. *acuta*, has ovate acute leaves.

Fragaria, 63.

vesca (english strawberry. E. w. M. ♃.) calyx of the fruit reflexed : hairs on the petioles spreading, on the peduncle close-pressed.

elatior (hautboy-strawberry. E. w. ♃.) calyx of the fruit reflexed : hairs on the peduncle and petiole spreading.

grandiflora (pineapple-strawberry. E. ♃.) calyx of the fruit erect : hairs on the peduncle and petiole erect : leaves coriaceous, somewhat glabrous above.

virginiana (wild strawberry. O. w. M. ♃.) calyx of the fruit spreading : hairs on the petioles erect, on the peduncles close-pressed : leaves somewhat glabrous above.

canadensis (mountain strawberry. Can. P. w. M. ♃.) large : leafets broad-oval, lateral ones manifestly petioled : pedicels long, recurve-

pendulous : receptacle of the seeds globose, honeycomb-scrobiculate, villose.

Frasera, 34.

caroliniensis (pyramid flower. P. r. & y. Ju. ♄.) leaves whorled or opposite : flowers in clusters. From 3 to 6 feet high.

Fraxinus, 98.

acuminata (white-ash.) O. w-g. M. ♄.) leafets petioled, oblong, shining, acuminate, very entire, glaucous beneath : flowers calycled.

juglandifolia (walnut-leaf ash, swamp ash. P. W. M. ♄.) leafets petioled, ovate, opake, serrate, glaucous beneath, axils of the veins pubescent : branchlets glabrous : flowers calycled.

pubescens (black-ash, red-ash. O. M. ♄.) leafets petioled, oval-ovate, serrate, petioles and branchlets downy beneath : flowers calycled.

sambucifolia (water-ash. M. ♄.) leafets sessile, lance-ovate, serrate, rugose-shining, round-oblique at the base, axils of the veins villose beneath : flowers naked, not calycled.

epiptera (P. Can. M. ♄.) leafets lance-oval, subserrate : samaras wedgeform, obtuse emarginate at the apex, terete below.

Fritillaria, 51.

imperialis (crown imperial. E. r. & y. M. ♃.) flowers under a leafy crown, nodding : leaves lance-linear, entire. From Persia.

meleagris (fritillary, guinea-hen flower. E. p & y. M. ♃.) leaves alternate, linear, channelled : stem 1-flowered : nectary linear. Flower checkered.

Fucus, 110.

natans (floating seaweed) filiform compressed,

pinnate: leaves oblong-lanceolate, serrate: vesicles globular, peduncled, scattered, on flat dilated peduncles.

vesiculosus (bubble-seaweed.) linear forked, entire; with globular, innate and axillary vesicles, cloven at the tips; barren ones flat, fertile ones tumid.

edulis (worm seaweed.) fleshy, wedge-form, nearly simple, glabrous both sides, rounded at top, entire at the margin.

fruticulosus (leather seaweed.) leathery; round, filiform, decompoundly branched above: branches nearly bristle-form, with alternate lax branchlets and small pinnate toothletted subdivisions.

nodosus (notty sea-weed.) somewhat forked: leaves 2-rowed, peduncled, roundish, entire, fertile: vesicles innate, solitary, broader than the frond.

Fuirena, 29.

squamosa (umbrella grass. C. Ju. ♃.) flowers in simple umbels; spikelets ovate: culm glabrous: leaves ciliate, sheaths hairy.

Fuligo, 118.

septica (soot fungus.) yellow, lacinate.

capitata, yellow, head-form.

Fumaria, 77.

officinalis (fumitory, Y. C. P. r. J. ☺.) stem branching, spread: leaves more than decompound; leafets wedge-lanceolate, gashed.

Funaria, 109.

hygrometica (hygrometer moss.) leaves ovate, acute, concave, entire, inflected: capsules swelling, drooping.

muhlenbergii, leaves obovate, awned, concave, serrulate, spread : capsule obovate, oblique.

G.

Galactia, 80.

glabella (milk-way plant. C. P. r. & w. J. 4.) prostrate, somewhat twining and glabrous : leaves ternate, oval-oblong, obtuse, emarginate at both ends : racemes axillary, simple, abbreviated, few-flowered : legumes villose. Root long, fusiform.

mollis (C. P. r. & w. Ju. 4.) twining, having soft whitish pubescence : leaves ternate, ovate-oblong, obtuse, smoothish, glaucous beneath : racemes axillary, simple, elongated, few-flowered : legumes villose.

Galanthus, 49.

nivalis (snow drop. F. w. Ap. 4.) leaves linear, keeled, acute, radical : scape 1-flowered.

Galega, 80.

virginiana (goat's rue. P. Y. A. r. J. 4.) erect, having whitish down : leafets (17 to 21) oval-oblong, acuminate : raceme terminal, short, subsessile : legumes reversed-falcate, villose, calyx woolly. Tephrosia. Persoon.

Galeopsis, 69.

tetrahit (flowering nettle. H. W. Y. P. r. & w. Ju. ☉.) the spaces between the joints of the stem thicken upwards : the upper whorls nearer together : calyx prickly, a little shorter than the corol : stem rough-haired.

Galium, 35.

1. *Fruit glabrous.*

trifidum (bedstraw. W. C. P. w. Ju. ♃.) stem procumbent, scabrous backwards: cauline leaves in fives, branch leaves in fours, linear, obtuse, scabrous at the margin and on the nerves: fascicles terminal, few-flowered; pedicels short: corols mostly 3-cleft.

tinctorium (dyer's cleavers. O. w. Ju. ♃.) stem diffuse, smoothish: cauline leaves in sixes, branch leaves in fours, linear, acutish; margins and nerves with slender prickles: peduncles terminal, elongated, mostly 3-flowered.

asprellum (rough bedstraw. O. w. Ju. ♃.) stem diffuse, very branching, prickly backwards: cauline leaves in sixes; branch leaves mostly in fours, lanceolate, acuminate, margins and nerves prickly: branchlets flower-bearing, many-flowered: pedicels short.

2. *Fruit hirsute.*

brachiatum (bed-straw. C. P. w. Ju. ♃.) stem limber, long, brachiate-ramose, hispid; branches short: leaves in sixes, lance-oblong, acuminate, glabrous, margin and keel ciliate: branches whorled, the longest dichotomous: pedicels 2-flowered: fruit with hooks. Pursh.

boreale (W. C. P. w. Ju. ♃.) stem erect, smooth leaves in fours, linear, acute, 3-nerved, glabrous: margins and nerves scabrous: panicle terminal, spread: fruit with slender bristles.

bermudianum (A. P. p. Ju. ♃.) stem very branching, scarcely pubescent: leaves in fours, ovate, obtuse, glabrous, margins and nerves pubescent, sometimes pellucid: branchlets floriferous, elongated: fruit with hooked bristles.

micranthum (Can. P. w. Ju. ♃.) stem very branch-

ing, prickly backwards : leaves short, lanceolate, mucronate, glabrous, margin and keel prickly : pedicels about 2-flowered : fruit hispid. Flowers small, many.

circaezans (wild liquorice. H. Y. C. P. w-y. J. 4.) stem erect, smooth : leaves in fours, oval, obtuse, glabrous, margins and nerves a little ciliate : peduncles few-flowered ; flowers remote, subsessile : fruit with hooked bristles. Leaves taste much like liquorice.

triflorum (W. C. A. P. w. Ju. 4.) stem procumbent, smoothish : leaves in fives or sixes, lance-obovate, mucronate, glabrous, scarcely ciliate at the margin : branchlets 3-flowered at the end ; flowers pedicelled : fruit small, hispid.

aparine (C. H. P. w. J ♄.) stem limber scabrous backwards : leaves in about eights, lance-linear, mucronate, hispid above, margin and keel prickly : branchlets of the length of the leaves, about 3-flowered : fruit hook-bristled.

pilosum (C. P. p. J. 4.) stem nearly simple, long, ascending, remotely geniculate, hispid : leaves in fours, oval, short-mucronate, very hirsute both sides, nerveless : branchlets nearly simple, about 3-flowered at the end : fruit pilose.

sirictum (C. A. w. Ju. 4.) stem stiffly erect, smoothish, branching ; branches short, erect : leaves in fours, linear-lanceolate, obtuse, 3-nerved, with involute scabrous margins : flowers panicled crouded ; peduncles short 3-flowered at the top, forked, hispid. Torrey. A new species discovered by Dr. C. W. Eddy.

Gaultheria, 57.

procumbens (spicy wintergreen. O. w. J. 4. or ♄.) stem procumbent ; branches erect : leaves obovate, acute at the base : flowers few, nodding. Berries red, consisting in part of the permanent calyx ; a little mealy, pleasant tasted.

hispidula (creeping wintergreen. W. N. P. Can. w. M. ♄.) stem creeping, hispid, leaves oval, acute : flowers solitary, axillary, subsessile, having but 8 stamens, short-bellform. Very plenty in Plainfield, Mass. and at the margin of a pond six miles north of Williams College.

Gaura, 53.

biennis (virginian loosestrife. A. P. r. & y. Au. ☿.) leaves lanceolate, toothed : spike crowded : fruit roundish-4-cornered, pubescent.

Genista, 78.

tinctoria (dyer's broom. E. y. Au. ♄.) leaves lanceolate, glabrous : branches terete, striate, erect : legumes glabrous.

Gentiana, 43.

lutea (yellow gentian. C. y.) leaves broad-ovate, nerved : corol about 5-cleft, wheel-form, whorled. Muhlenberg quotes Kalm, as an authority for this being found in New-Jersey.

pneumonanthe (calathian violet. P. Can. b. A. ♃.) stem terete : leaves lance-linear, obtusish : flowers terminal, fascicled ; lateral ones solitary, peduncled ; corol 5-cleft, bellform, divisions roundish, inner folds with one acute tooth.

saponaria (soap-gentian. O. b. & w. S. ♃.) stem terete, glabrous : leaves lance-oblong 3-nerved ; flowers sessile, fascicled, terminal and axillary : corol 5-cleft bell-ventricose, almost closed at the top ; inner folds toothed.

ochroleuca (C. P. y. & b. S. ♃.) stem somewhat angled, roughish : leaves lance-ovate, roughish : flowers sessile, fascicled, terminal ; corol 5-cleft, bell-ventricose, divisions acute, inner folds simple, acute.

linearis (P. b. Au. ♃.) stem roughish : leaves

lance-linear, undulate, ciliate as the calyxes : flowers 5-cleft, bellform, terminal, sessile, crowded ; divisions short, obtuse : interior folds denticulate.

quinqueflora (W. A. P. b. Au. ♂.) stem 4-cornered, branching : leaves half-clasping, oval, acute, 3-nerved : flowers 5-cleft, bell-tubular with a glabrous throat, terminal and lateral, in threes or fives, subpedicelled, divisions lanceolate, acuminate : calyx short, narrow.

angustifolia (C. b. S. 4.) stem terete, simple, 1-flowered : leaves narrow-linear, spreading : corol 5-cleft, divisions oval, inner folds torn.

crinita (fringed gentian. O. b. S. 4.) stem terete : branches long, 1-flowered : leaves lanceolate, acute : corol 4-cleft, divisions obovate, gash-ciliate, interior folds simple.

Geranium, 76.

sanguineum (bloody geranium. E. 4.) peduncle 1-flowered : leaves 5-parted, 3-cleft, orbicular : capsule bristly at the top.

maculatum (crowfoot geranium. O. r. & b. J. 4.) erect : pubescence reversed : stem dichotomous : leaves opposite, 3 or 5-parted, upper ones sessile : peduncles 2-flowered : petals obovate.

columbinum (P. C. b. M. 4.) peduncles 2-flowered, longer than the leaves : leaves 5-parted ; lobes many-cleft, linear : petals emarginate, of the length of the awned calyx : arils glabrous.

pusillum (P. b. M. ☺.) peduncles 2-flowered ; flowers pentandrous, petals emarginate of the length of the awnless calyx : leaves about 7-lobed, 3-cleft : arils pubescent.

robertianum (herb robert. O. r. J. ♂.) spread, hirsute : leaves opposite, ternate and quinate, 3-cleft-pinnatifid : peduncles 2-flowered : petals entire, twice as long as the awned calyx : aril net-veined.

diesectum (C. r. J. ☺.) spread, hairy : leaves opposite, 5-parted, lobes 3-cleft, gashed, linear : peduncles 2-flowered, long : petals emarginate, the length of the awned calyx : aril with glandular hairs.

Geranium, see Pelargonium and Erodium.

GERARDIA, 72.

flava (false foxglove. O. y. Ju. ♃.) pubescent : stem simple : leaves subsessile, lanceolate, entire or toothed ; lower ones subpinnatifid, gashed : flowers axillary, opposite, subsessile. 2 or 3 feet high.

glauca (oak-leaf foxglove. O. y. Ju. ♃.) glabrous ; stem glaucous, purple, panicle-like ; leaves petioled, sinuate-pinnatifid with acute lanceolate divisions : upper leaves lanceolate entire. First discovered and named by Dr. C. W. Eddy. G. quercifolia. Pursh. 3 to 5 feet high.

pedicularia (lousewort foxglove. N. Y. C. P. y. S. ♄.) pubescent, brachiate-panicled : leaves oblong doubly gash-serrate and pinnatifid : flowers axillary, opposite, pediculled : divisions of the calyx leafy, gash-toothed.

purpurea (P. Y. C p. Au. ♄. ☺.) stem with opposite branches : leaves linear, slender : flowers axillary, opposite, subsessile.

crinita (W. A. C. p. Ju. ♄.) stem with opposite branches : leaves short and fleshy. Discovered by Dr. C. W. Eddy. Resembles the *purpurea*. Var. *crassifolia*. Pursh. It is from 6 to 12 inches high.

auriculata (P. p. Au. ☺.) nearly simple, rough : leaves lance-ovate, 2-eared at the base, entire : flowers axillary, opposite ; leaves and flowers closely sessile. About 8 inches high.

tenuifolia (P. p. Ju. ♄.) branch-panicled : leaves linear : peduncles axillary, opposite, longer than the flowers.

setacea (P. Au. ☉.) stem very branching: leaves setaceous: branches axillary, longer than the leaves, mostly 1-flowered.

Geum, 63.

virginianum (avens. O. w. Ju. ♃.) pubescent: radical and lower cauline leaves ternate, upper ones lanceolate: stipules ovate, subentire: flowers erect: petals shorter than the calyx: awns hooked, naked; at the apex twisted, hairy.

strictum (upright avens. W. Can. C. y. J. ♃.) hirsute: leaves all interruptedly pinnate, the odd one largest; leafets ovate, toothed: stipules gashed: divisions of the calyx 5, alternately linear, short: flowers erect; petals roundish, longer than the calyx, awns naked, hooked.

agrimonoides (C. w. Ju. ♃.) very hirsute: leaves all pinnate; leafets about equal, unequally gash-toothed: stipules ovate, subentire: flowers erect: divisions of the calyx about equal; petals oval, of the length of the calyx.

geniculatum (Can. ♃.) many-flowered, subpanicled: cauline leaves subsessile, 3-parted: stipules entire: petals wedge-obcordate: awns all over hairy, geniculate in the middle.

rivale (purple avens. O. p. M. ♃.) pubescent: stem simple: radical leaves interruptedly pinnate; cauline ones 3-cleft: flowers nodding; petals of the length of the calyx: awns plumose, nakedish above, a little hooked.

album (P. w. Ju. ♃.) pubescent: radical leaves pinnate; cauline ones ternate, upper ones simple, 3-cleft: lower stipules gashed: flowers erect; petals of the length of the calyx: awns hooked, naked, hairy at the end.

peckii (Whitehills. Ju. ♃.) somewhat glabrous: stem 1-flowered: radical leaves reniform, rounded, subtruncate at the base, gash-toothed:

petioles very long, sometimes appendaged : petals of the length of the calyx. Discovered by Professor Peck, of Harvard College.

Gillenia, see Spiraea.

GLAUX, 43.

maritima (sea milkwort. Can. r. Ju. 4.) leaves oblong, smooth : flowers axillary, sessile. In salt marshes.

GLECHOMA, 69.

hederacea (ground ivy, gill-overground. O. b. & r. M. 4.) leaves reniform, crenate : stem rooting.
corâata (P. b. 4.) leaves heart-form.

GLEDITSCHIA, 100.

triacantha (honey-locust. P. w. J. ♄.) thorns strong, cross-branched : leaves linear-oblong : legumes very long, compressed. A large tree. One side of the long flat legume contains a sweet pulp.

GLYCINE, 80.

monoica (wild bean. C. P. b. & w. Ju. ☺.) stem slender, hairy backwards : leaves ternate, ovate, glabrous, membranaceous : cauline racemes pendant, lax, mostly bearing corols and sterile : bracts orbicular, concave : radical peduncles bearing apetalous flowers, fertile.
angulosa (P. p. Au. ☺.) twining, pubescent : lower leafets rhomboid-oval, upper ones 3-lobed : heads long-peduncled : legumes linear. Phaseolus trilobus. Mx.
comosa (slender bean-vine. O. b. Ju. 4.) stem

twining: leaves ternate, lance-ovate, acute, hirsute: lateral racemes pendant, with flowers crowded, all fertile.

apios (ground-nut. O. b. & p. Au. ♃.) twining, glabrous: root tuberous: leaves unequally pinnate; leafets 5 or 7, lance-ovate, upper ones narrow: spikes crowded, shorter than the leaves. Roots tuberous, farinaceous and pleasant tasted.

Glycirrhiza, 79.

officinalis (liquorice. E. ♃.) leaves pinnate, the terminal one petioled. Root tuberous-cylindric, sweet.

Gnaphalium, 85.

margaritaceum (large-flowered life-everlasting. O. y. & w. Ju. ♃.) leaves lanceolate, gradually narrowing, acute: stem branching above: corymb fastigiate: flowers pedicelled. About 18 inches high. Flowers with white pearly rays and yellow disks. Wrongly applied in the Boston Florula.

polycephalum (sweet-scented life-everlasting. O. y-w. Ju. ☺.) leaves lance-linear, acute, glabrous above, downy beneath: stem panicled, downy; corymbs terminal. The heads of this species are more numerous than of the preceding, more close, and the flowers are smaller. Grows to about the same height.

luteo-album (New-England. y. ☺.) leaves half-clasping, lance-linear, subundulate: stem elongated; stem and leaves downy. Muhlenberg says, this species grows in New-England; but I never found it there.

plantagineum (early life-everlasting. O. w. Ap. ♃.) shoots procumbent: stem simple: radical leaves obovate, nerved: corymb close-pressed flowers dioecious; inner scales of the calyx

elongated, acutish, coloured. About 6 inches high.

dioicum (mousear. W. P. w. J. ♃.) shoots procumbent: stem simple: radical leaves spatulate: corymb close-pressed: flowers dioecious: inner scales of the calyx elongated, obtuse, coloured. Differs from the last a little in the forms of the radical leaves, the scales of the calyx and time of flowering. But perhaps it may be a variety of it.

purpureum (C. P. p. Ju. ♃.) leaves linear-spatulate, downy beneath: stem erect, simple: flowers sessile, glomerate, terminal and axillary. Hardly so tall as the two last species. Calyx purple.

americanum (P. y. Ju. ☉.) stem erect, branching: leaves obovate-spatulate, pubescent beneath flowers axillary and terminal, glomerate-spiked. About as tall as the last.

uliginosum (mud life-everlasting. O. w. Ju. ☉.) stem branched, spread, woolly: leaves lance-linear, narrowed at both ends, downy: flowers terminal heaped; 4 or 5 inches long, half-prostrate, calyxes brown.

germanicum (P. w. Ju. ☉.) stem erect, dichotomous: leaves lance-linear, acute, tomentose: flowers in a globular head, terminal and lateral. 5 or 6 inches high.

sylvaticum (C. y. Ju. ♃.) stem very simple, erect: leaves narrow-lanceolate, slender at both ends and woolly: flowers terminal and axillary, sessile, spiked. 10 or 12 inches high.

Gomphrena, 42.

globosa (globe amaranth, bachelor's button. E. r. Au. ☉.) stem erect: leaves lance-ovate: heads solitary: peduncles 2-leaved.

Gordonia, 76.

lasianthus (lolly bay. E. S. ♄.) flowers long-peduncled: leaves coriaceous, glabrous: capsules ovate.

Gossypium, 77.

herbaceum (cotton. E. Au. ☿.) leaves 5-lobed, mucronate, one gland beneath: stem herbaceous, smooth.

Gratiola, 26.

officinalis (hedge hyssop. O. y. Ju. ♃.) leaves broad-linear, sessile, entire, 3-nerved, punctate above: peduncles opposite, hardly so long as the leaves: filaments sometimes wanting and sometimes without anthers. In damp ground. G. aurea. Muhl.

virginica (creeping hedge-hyssop. Y. P. C. w-y. Ju. ♃.) leaves oblanceolate, lower ones slender, remotely toothed, nerved, glabrous: peduncles alternate, very short: capules acuminate, longer than the calyx. In wet ground.

acuminata (P. y. Ju. ♃.) leaves lanceolate, serrate, pubescent: peduncles opposite, longer than the leaves: leafets of the calyx linear, of the length of the subglobose capsule. In wet places.

pubescens (C. Ju.) stem erect, with pubescent branches: leaves lanceolate, narrowed, and a little connate, at the base; remotely tooth-serrate: leaves of calyx unequal. In wet places. A new species discovered and described by Dr. John Torrey.

Grimmia, 107.

controversa (awl-cap moss) leaves linear-awlform

serrate at top, curled when dry : capsule oval, with the awlform cap a little curved.

alpicola. leaves lanceolate, obtusish, awnless : capsule obconic, nearly sessile : fringe not perforated.

Gymnostomum, 106.

pyriforme (toothless moss.) leaves ovate, acute, spread : capsule pear-form : lid obtuse-pointed.

Gyrophora, 113.

anthracina. cartilage-membranous, very brittle, peltate, expanded, irregularly torn, blackish-grey above, sooty black and quite smooth beneath : buttons raised.

vellea (morocco leather. W. N.) membranous, peltate with a stalk, very large, with the circumference slightly spread-toothed ; glabrous above, hairy beneath with branched straitish fibres, brownish-grey both sides : buttons circularly plaited.

papillosa (shoe-leather W. H. N.) black both sides, papillose beneath. Very brittle when dry, and tough when wet. Grows on rocks, from 3 to 6 inches diameter.

H.

Hamamelis, 36.

virginica (witch-hazel. O. y. Oc. ♄.) leaves obovate, acute, toothed, cordate with a small sinuse. Flowers in the fall and perfects the fruit the next summer.

Hamiltonia, 99.

oleifera (oil-nut. P. g-y. J. ♄.) pubescent : leaves

oblong, entire, acuminate: flowers in terminal racemes. A shrub about 5 or 6 feet high.

Hedeoma, 60.

pulegioides (penny-royal. O. b. J. ☉.) pubescent: leaves oblong, serrate: peduncles axillary, whorled: lower lip of the calyx with 2 ciliate bristles. 5 or 6 inches high.

glabra (C. ♃.) glabrous: lower leaves oblong, upper ones lanceolate, remotely serrate: peduncles terminal, ternate.

Hedera, 42.

helix (english ivy. E. g-w. S. ♄.) leaves 3 or 5-lobed, floral ones ovate: umbel erect.

Hedysarum, 81.

canadense (bush trefoil W. C. r. Ju. ♃.) erect, smoothish: leaves ternate, lance-oblong: stipules filiform: flowers racemed: joints of the loment obtusely-triangled, hispid.

canescens (P. r-b. Au. ♃.) erect, pilose: stem angled-ciliate, hispid: leaves ternate, roundish, with close-pressed hairs beneath: stipules ovate, acuminate: racemes panicled: bracts cordate: joints of the loment triangular, hispid.

marilandicum (C. P. p. Ju. ♃.) erect, branching, pilose: leaves ternate, oblong, villose beneath: stipules subulate: racemes panicled: loment 3-jointed; the joints rhomboid, reticulate, a little hairy. Flowers large.

obtusum (C. P. p. & g. Au. ♃.) erect, pubescent: leaves ternate, ovate, obtuse, subcordate at the base: stipules lance-subulate: panicle terminal: joints of the loment suborbiculate, reticulate, hispid: loments rough, joints oval.

viridiflorum (W. C. P. Y. g. & p. Au. ♃.) erect, branching, pubescent: leaves ternate, ovate-oblong, scabrous beneath: stipules lance-cuspidate: racemes panicled, bracted. About 3 feet high. Flowers become greenish when old.

glabellum (C. p. Ju. ♃.) erect, glabrous: leaves ternate, ovate, obtuse, subglaucous beneath: stipules small, subulate: panicle terminal: joints of the loment rhomb-triangular.

ciliare (W. P. p. Au. ♃.) erect, a little glabrous: leaves ternate, ovate, pubescent beneath, margin ciliate: stipules filiform: panicle terminal: joints of the loment (2 or 3) half-orbicular, hispid.

paniculatum (C. A. P. p. Au. ♃.) erect glabrous: leaves ternate, lance-oblong or oval, glabrous: stipules subulate: panicle terminal: joints of the loment (4) rhomboid, pubescent.

rotundifolium (Y. C. P. p. Au. ♃.) prostrate, hirsute: leaves ternate, orbicular, pilose both sides: stipules round-cordate, reflexed: racemes axillary and in the terminal panicles few-flowered: bracts cordate: joints of the loment sub-rhombic, reticulate scabrous.

bracteosum (P. r. Au. ♃.) erect, glabrous: leaves ternate, oblong-oval, acuminate: stipules subulate: racemes terminal with scattered flowers: bracts ovate, acuminate, striate, glabrous: joints of the loment sub-oval. Flowers large.

cuspidatum (P. p. Au. ♃.) erect, glabrous: leaves ternate, petioled, ovate-oblong, long-acuminate, glabrous, margin scabrous: stipules lance-ovate: panicle terminal: joints of the loment triangular, reticulate, glabrous, at the margin pubescent.

glutinosum (O. p. Ju. ♃.) erect, simple: leaves long-petioled, ternate, round-ovate, acuminate: panicle scape-like, proceeding from one side of the base of the stem: peduncles with glutinous

hairs: joints of the loment oblong-triangular, a little glabrous.

nudiflorum (C. p. Ju. 4.) erect, simple, glabrous: leaves ternate, broad-oval, acuminate: scape panicled, glabrous, radical: stem bearing leaves higher: joints of the loment round-triangular, somewhat glabrous.

acuminatum (C. p. Ju. 4.) erect, simple, pubescent, leafy at the summit: leaves ternate, ovate, long-acuminate, with scattered hairs on both sides close-pressed, long-petioled; the odd leaflet round-rhomboid: panicle long-peduncled, terminal.

repens (P. p. Au. 4.) leaves round-oval, emarginate: racemes axillary: loments repand-toothed; stem creeping.

prostratum (P. p. Au. 4.) prostrate: leaves petioled; leafets oval, obtuse, thin hairs underside close-pressed: branches axillary, longer than the leaves: loments ovate pubescent. Lespedeza prostrata. Pursh.

strictum (C. p. Ju. 4.) stiffly erect, glabrous, simple: leaves petioled, ternate, linear-oval, glabrous net-veined, glaucous beneath: stipules subulate: panicle terminal, peduncled, few-flowered.

Hedysarum, see Lespedeza.

Helenium, 87.

autumnale (false sunflower. P. y. Oc. 4.) leaves lanceolate, serrate, subdecurrent: stem corymbed above: disk florets 5-cleft; rays flat, reflexed.

Helianthus, 87.

1. *Leaves opposite.*

annuus (common sunflower. South America. y. & w. Ju. ☉.) leaves all cordate, 3-nerved: pe-

duncles thickened: flowers nodding. Flowers very large.

pubescens (P. y. Au. ♄.) white-pubescent: stem villose: leaves sessile, heart-ovate, clasping, 3-nerved, close-pressed subserrate: scales of the calyx lanceolate villose.

atrorubens (P. y. & p. Au. ♃.) hispid: stem nakedish above, lax-panicled, leaves spatulate, ovate, crenate, 3-nerved, scabrous: scales of the calyx lance-ovate, of the length of the disk.

trachelifolius (C. P. Can. y. Au. ♃.) leaves lance-ovate, acuminate, serrate, 3-nerved, very rough both sides: scales of the calyx lance-linear, ciliate, outer ones longest. About 3 feet high.

divaricatus (C. P. Can. y. Au. ♃.) stem glabrous, very branching: leaves nearly opposite, sessile, lance-ovate, 3-nerved: panicle trichotomous, slender, few-flowered. 5 or 6 feet high.

frondosus (C. P. Can. y. Ju. ♃.) stem glabrous below: leaves ovate, sharply-serrate: peduncles scabrous: calyx squarrose, undulate, leafy, ciliate: rays 8-flowered. 4 feet high.

2. *Upper leaves alternate.*

multiflorus (P. y. Au. ♃.) leaves 3-nerved, scabrous; lower ones cordate, upper ones ovate: ray many-flowered: scales of the calyx lanceolate.

macrophyllus (P. y. Au. ♃.) leaves ovate, acuminate, 3-nerved, serrate; scabrous above, white-pubescent beneath: scales of the calyx linear, squarrose.

tuberosus (jerusalem artichoke. E. y. S. ♃.) leaves 3-nerved, scabrous, lower ones heart-ovate, upper ones ovate, acuminate; petioles ciliate. Root tuberous. Naturalized.

strumosus (New England. ♃.) leaves ovate, acuminate, serrate, 3-nerved, scabrous beneath: scales of the calyx lance-linear, ciliate at the base.

altissimus (C. P. y. Au. ♃.) leaves alternate, lance-

ovate, serrate, scabrous, 3-nerved, slender at the apex, with ciliate petioles: scales of the calyx lanceolate, ciliate. Chaff on the receptacle green, stem purple.

giganteus (Can. P. y. Au. ♃.) leaves alternate, lanceolate, serrate, scabrous, obsoletely 3-nerved, tapering to both ends, subsessile, ciliate at the base: scales of the calyx lanceolate, ciliate, Tall and rough. Chaff on the receptacle black.

decapetalus (O. y. Au. ♃.) leaves ovate, acuminate, remotely serrate, 3-nerved, scabrous: scales of the calyx lanceolate, subequal, subciliate: rays ten or twelve. Three or four feet high.

mollis (P. y. Ju. ♃.) leaves ovate acuminate, 3-nerved, with close-pressed serratures scabrous above, white-pubescent beneath very soft: scales of the calyx lanceolate, close-pressed.

angustifolius (C. y. S. ♃.) stem slender, about 1-flowered: leaves linear, with a revolute margin, very rough. Rays yellow, disk brown.

Heliopsis, 86.

laevis (ox-eye. P. Au. ♃.) leaves opposite, ovate, serrate, 3-nerved. Tall, resembling the sunflowers.

Heliotropium, 37.

indicum (turnsole. Southern states. b. Ju. ☉.) leaves heart-ovate, acute, roughish: spikes solitary: fruit bifid.

Helleborus, 66.

foetidus (hellebore. E.) stem many-flowered, leafy: leaves pedate, remotely serrate, coriaceous: corol somewhat converging.

Helleborus, see Coptis.

Helonias, 52.

latifolia (helonias. C. P. p. M. ♃) scape almost leafless : spike ovate crowded : bract lance-linear, mucronate, nerved. Anthers blue.

erythrosperma (P. w. & g. J. ♃.) scape leafy : racemes oblong : bracts short, oblong : leaves glabrous, lance-linear : seed ovate, reddish : pericarp legumelike, fleshy.

asphodeloides (C. w. J. ♃.) scape leafy : raceme oblong, crowded : bracts setaceous : filamens broader at the base, equalling the corol : leaves subulate-setaceous.

dioica (P. w. Ju. ♃.) scape leafy : raceme spiked, nodding : pedicels short, sub-bracted : filaments longer than the corol : petals linear ; leaves lance-oblong.

Helvella, 118.

fuliginosa (smoky fungus. A.) inflated, angular, plaited, blackish or dark coloured : stem tubular, greyish, furrowed.

gelatinosa, convex, brown-yellow, deflected, plaited : stem tubular, brownish-yellow.

fibuliformis, ochre above, blackish beneath : stem short dark brown.

calyciformis, ochre, glabrous, granular-surfy beneath : stem short flesh-colour, granular-scurfy.

Hemerocallis, 50.

flava (yellow day-lily. E. y. Ju. ♃.) leaves broad-linear, keeled : petals flat, acute ; nerves of the petals undivided.

fulva (tawny day-lily. E. y. Ju. ♃) leaves linear-lanceolate, keeled : three inner petals obtuse, undulate ; nerves of the outer petals branching.

Hepatica, 66.

triloba (liverleaf. O. w. & b. Ap. ♃.) leaves 3-

lobed, entire, obtuse: calyx leaves broad-ovate, obtuse. Var. *acuta*, leaves 3 to 5-lobed, acute: calyx leaves acute. Perhaps this variety ought to constitute a distinct species. It has been observed by Professor Dewey, that near Williams College, all the plants of this species growing on the north sides of hills are of the variety *acuta*.

Heracleum, 45.

lanatum (O. w. Ju. 4.) petioles and nerves of the leaves very villose beneath: leafets petioled, broad, round-cordate, subpalmate-lobed: seed orbicular. A large umbelliferous plant of a white woolly appearance. Grows plentifully in meadows east of Williams College.

Hesperis, 74.

tristis (yellow rocket. E. ☿.) stem hispid; branches spreading: leaves lance-ovate: silique sword-form.

matronalis (garden rocket, dame violet. E. 4.) stem simple, erect: leaves lance-ovate, denticulate: petals emarginate, mucronate. Var. *hortensis*, flowers double, odoriferous, white.

pinnatifida (wild rocket. P. J. ☿.) leaves sharply serrate; upper ones lanceolate, lower ones pinnatifid: silique sub-peduncled, shortish.

Heteranthera, 28.

reniformis, (odd-shives. P. w. Ju. 4.) leaves round-reniform, acute: spathe sub-3-lobed, glabrous. Leaves floating.

Heuchera, 44.

viscida (allum root. C. P. r. Ju. 4.) viscid-pubescent; scape and leaves roughish: leaves

moderately round-lobed, with dilated obtuse mucronate teeth: peduncles of the panicle very dichotomous, spread: calyx short, obtuse. H. americana.

pubescens (P. r. & y. J. ♃.) dusty-pubescent: scape glabrous below: leaves sub-acute-lobed, toothed, glabrous beneath: peduncles of the panicle short, with crowded flowers: calyx large, bell-form: petals longer than the calyx, large.

Hibiscus, 77.

moscheutus (marsh mallow. C. w. & p. Au. ♃.) leaves ovate, acuminate, serrate, sub-3-lobed, sub-5-nerved, white-downy beneath: peduncles flower-bearing, calyx downy: capsules glabrous.

palustris (marsh hibiscus. C. P. p. Au. ♃.) leaves broad-oval, obtusely serrate, sub-3-lobed, 3-nerved, downy beneath: peduncles axillary, longer than the petiole.

riparius (P. p. Au. ♃) very glabrous: leaves 3-lobed-hastate, acuminate, serrate: corol tubular-bellform: capsules ovate, acuminate, glabrous: seeds silky.

syriacus (syrian mallow. E. w. & p. Au. ♄.) leaves wedge-ovate, 3-lobed, toothed: outer calyx about 8-leaved, of the length of the inner: stem woody. A shrub 4 to 6 feet high.

esculentus (okra. E. ☉.) leaves heart-5-lobed, obtusish, toothed: petiole longer than the flower: outer calyx about 5-leaved, deciduous, bursting lengthwise.

virginicus (sweat weed. C. P. r. Au. ♃.) downy, rough: leaves acuminate, unequally toothed; lower ones cordate, undivided, upper ones cordate, undivided, upper ones cordate-oblong, 3-lobed: peduncles axillary and in terminal racemes; flowers nodding: pistils nodding. In salt marshes.

trionum (bladder ketmia, flower of an hour. E. ☉.) outer calyx many-leaved, inner one inflated : capsule membranaceous : leaves toothed, upper ones 3-parted.

Hieracium, 82.

aurantiacum (orange hawkweed. E. y. ♃.) scape leafy, hispid : flowers corymbed, peduncles glomerate : leaves oblong, acutish, pilose-hispid.

venosum (vein-leaf hawkweed. O. y. Ju. ♃.) scape naked, corymb-panicled, glabrous ; pedicels filiform : leaves lance-obovate with thin hairs above and naked beneath, margin ciliate, glandular-toothed, veins coloured : calyx glabrous.

gronovii (C. P. Ju. ♃.) scape somewhat leafy, or naked, corymb-panicled : calyx pubescent : radical leaves entire, obovate, obtuse, ciliate.

paniculatum (O. y. Ju. ♃.) very glabrous : stem erect, leafy, panicled, white-woolly beneath : pedicels capillary : leaves lanceolate, naked, toothed, membranaceous.

marianum (C. W. N. y. Ju. ♃.) stem erect, villose : leaves oval-obovate, strigose, villose on the keel, lower ones subdentate : peduncles and calyxes downy. Resembles the H. gronovii.

kalmii (P. y. Au. ♃.) stem erect, many-flowered, glabrous : leaves subsessile, lanceolate, acuminate, sharply toothed outside : peduncles cauline, near the top of the stem alternate, about 1-flowered, downy.

virgatum (W. N. Ju. ♃.) stem erect, simple, villose : leaves sessile, lanceolate, acute, glabrous, pilose beneath, sharply repand-toothed at the margin, entire towards the apex : panicle subcorymbed : calyx and peduncle tomentose.

scabrum (P. y. Au. ♃.) very hirsute : stem erect,

leafy, hispid, scabrous with tawny dots; leaves oblong-ovate, entire, hirsute both sides: panicle sub-simple, many-flowered: calyx and panicle glandular-hispid: pedicels short, divaricate. From 3 to 5 feet high.

Hippophae, 98.

canadensis (sea buckthorn. C. M. ♄.) leaves ovate, acutish, a little glabrous above, silver-haired and brilliant beneath; scales scattered ferruginous.

Hippuris, 25.

vulgaris (mares tail. P. W. C. y-g. M. ♃) leaves mostly in sixes, linear. In water.

Holcus, 33.

lanatus (soft grass. P. C. J. ♃.) glumes 2-flowered, the perfect flower awnless, the staminate one awned, recurved, flower much shorter.

odoratus (C. P. Ju. ♃.) panicle spreading: glumes 3-flowered, awnless; florets crowded; perfect one in the middle, diandrous, glabrous; staminate one triandrous.

monticola (Whitehills. Ju.) glumes 3-flowered, intermediate one diandrous, perfect; lateral ones staminate, triandrous: outer valve awned upon the back. A new species discovered by Dr. Bigelow.

Holosteum, 33.

succulentum (succulent chickweed. C.) leaves oval, fleshy: petals subtrifid, smaller than the calyx. Pursh doubts the existence of this plant in America.

Hordeum, 30.

vulgare (barley, E. Ju. ☉.) florets all perfect, awned; in two erect rows.

jubatum (New-England. Ju. ♄.) awns and involucres setaceous, very long.

Hortensia, 59.

speciosa (changeable hydrangea. r. & w. J. ♄.) leaves broadly ovate, serrate, acuminate: flowers corymbed. From the East Indies. This is the common flower-pot shrub, usually called hyderindia.

Hottonia, 38.

palustris (water violet. C. Ju. ♃.) flowers whorled, subsessile: stem geniculate, with inflated joints. In stagnant waters.

Houstonia, 34.

coerulea (Venus' pride. O. b. & w. M. ♃.) stem erect, setaceous, dichotomous: radical leaves spatulate; cauline ones oblanceolate, opposite: peduncles 1-flowered elongated.

purpurea (C. P. p. Ju. ♃.) stem erect, branching above, pubescent at the knee joints: leaves sessile, ovate, lanceolate or lance-linear: fascicles terminal. corymbed.

longifolia (P. p. Ju. ♃.) stem erect, very branching, glabrous: leaves linear: flowers terminal, fascicled, subsessile, often ternate.

Hudsonia, 60.

ericoides (false heath. C. y. J. ♄.) leaves acerose-subulate, hirsute: peduncles filiform, solitary. About 6 inches high.

Humulus, 99.

lupulus (hop. O. g-y. Au. ♃.) stem twining with the sun: leaves lobed. This plant is called an exotic by some botanists. I should judge, from the wild state in which I have seen it, that if it is exotic, it was introduced by the Indians along with the oaks, pines and maples.

Hyacinthus, 50.

orientalis (garden hyacinth. E. r. Ap. ♃.) corol funnel-form, half-6-cleft, ventricose at the base.

muscari (musk hyacinth. E. b. Ap. ♃.) corols ovate, all equal.

botryoides (grape hyacinth. E. b. Ap. ♃.) corols globose, uniform: leaves cylindric, channelled, strait.

comosus (purple grape hyacinth. E. p.) corol angular-cylindric; at the summit sterile, long-peduncled, erect.

Hydnum, 117.

imbricatum (prickly fungus) on a stem, imbricate, convex, red-brown with darker scales: stem pale-brown or brownish-white.

repandum, convex, lobed, cinnamon: prickles oblique, soft, cinnamon: stem round.

coralloides, whitish, much-branched: branches compressed, deflected at the ends: prickles incurved; on a stem.

minimum, roundish, leathery or woody, stemless: prickles soft, pale to strong golden, becoming grey.

chrysorhizum (paper punk.) yellow, membranaceous, stemless, spread: root golden-yellow, filiform, with intersecting branches; extending far along the grains of decaying wood. The root of this fungus has been often noticed

several yards in length; but Dr. J. Torrey, of New-York, was the first, I believe, who traced it to the pileus, and proved it a *hydnum*.

Hydrangea, 58.

vulgaris (hydrangea. P. w. Au. ♄.) leaves oblong-ovate, obtuse at the base, acuminate, toothed, glabrous beneath: cymes naked. A shrub about 5 feet high.

nivea (P. w. Ju. ♄.) leaves ovate, acuminate, toothed, snow-white down beneath, serratures mucronate: cymes radiate.

Hydrangea, see Hortentia.

Hydrastis, 66.

canadensis (orange root. P. w-r. Ap. ♃.) stem with 2 opposite leaves above; leaves petioled, emarginate at the base, palmate, serrate, gashed: peduncle terminal, solitary, 1-flowered. Roots yellow.

Hydrocotyle, 45.

umbellata (water navelwort. P. M. ♃.) leaves peltate, crenate, at the base emarginate: umbels peduncled, many-flowered.

americana (O. g-w. J. ♃.) glabrous, tuberous: leaves subpeltate, orbicular, doubly-crenate: subumbelled glomerules few-flowered. Flowers very small. Plant low and subprostrate.

vulgaris (P. g-w. J. ♃.) leaves orbicular, peltate, slightly crenate: scape interruptedly spiked, few-flowered.

bipinnata (bulbous pennywort. P. g-w. Ap. ♃.) root bulbous: stem simple, 2-leaved, lateral leaf 3-parted; divisions subpinnate, leafets divided, terminal one sub-biternate: umbels terminal, 3 to 6-flowered. Anthers dark purple.

Hydropeltis, 66.

purpurea (water shield. H. C. Chatham, (New-York.) Plainfield, (Mass.) P. p. Au. 4.) leaves peltate, oval, entire: peduncles solitary, 1-flowered. The leaves float on the surface of water, having a long flexible petiole. Plant mostly covered with mucilage.

Hydrophyllum, 37.

appendiculatum (waterleaf. P. b. M. 4.) very hirsute: radical leaves subpinnatifid, cauline one lobe-angled: sinuses of the calyx appendaged: the fasicles of flowers subpanicled. Calyx very hispid.

virginicum (burr-flower. W. P. b. J. 4.) glabrous: leaves pinnate and pinnatifid, divisions lance-oval, gash-serrate: fascicles of the flowers conglomerate. The flowers have the appearance of a burr several weeks before they expand.

canadense (rough burr-flower. W. P. p. & w. Ju. 4.) hirsute: leaves lobe-angled: fascicles of the flowers crowded. Resembles the last in some respects; but the leaves are much larger.

Hyoscyamus, 39.

niger (henbane. E. Ju. ☉.) leaves clasping sinuate: flowers veiny, sessile.

Hyoseris, 82.

amplexicaulis (P. C. W. y. J.) radical leaves sublyrate, cauline ones clasping, lanceolate, entire. H. prenanthoides.

Hypericum, 65.

1. *Flowers with 5 styles.*

aseyroides (St. John's wort. A. W. P. C. y. Ju. 4.) herbaceous, glabrous: stem simple 4-corner-

ed : leaves sessile, oblong, acute, glabrous : flowers terminal ; styles of the length of the stamens : leafets of the calyx lance-ovate. Flowers very large.

pyramidatum (Can. Ju. ♃.) herbaceous, erect : stem about 4-angled, branching : leaves sessile, oblong, acute, glabrous : flowers terminal : styles shorter than the stamens : leafets of the calyx ovate, acute.

latum (P. Ju. ♃. or ♄.) branches 2-edged : leaves oval-oblong, obtuse, mucronate, narrowed at the base, flowers terminal, subsolitary leafets of the calyx oblong, acute : styles coadunate, nearly equalling the calyx, corol and stamens.

prolificum (Y. P. J. ♃. or ♄.) branches 2-edged : leaves lance-linear, obtusish : corymbs axillary and terminal, few-flowered : flowers at first sessile ; stamens and styles of the length of the petals : leafets of the calyx lanceolate.

2. *Flowers with* 3 *styles.*

angulosum (C. P. y-r. Ju. ♃.) erect : stem 4-sided : leaves oblong, acute, closely sessile : panicle terminal, dichotomous : branches divaricate, with distant, alternate flowers ; calyx subcampanulate, divisions lanceolate, acute, keeled below, almost as long as the corol : petals with a single lateral tooth.

canadense (N. C. W. P. Ju. ☉.) erect, small flowered : stem 4-sided, dichotomous above : leaves sessile, linear, slender at the base : the branches of the panicle opposite, the branchlets dichotomous : capsules long, conic, coloured. Capsules red.

virginicum (C. N. P. Y. p. Au. ♃.) flowers with 9 or 12 stamens, distinctly arranged in three parcels and separated by nectaries : leaves oval, obtuse, clasping : stem compressed. Elodea campanulata. Pursh.

parviflorum (O. y. Ju. ♃.) erect, small glabrous; dichotomous-ramose, somewhat 4-sided: leaves ovate-oblong, subcordate, obtuse, nerved, sessile: panicles terminal, dichotomous-corymbed: petals shorter than the lanceolate calyx.

corymbosum (A. C. y. Ju. ♃.) erect, glabrous, darkly-punctate: stem terete, branching: leaves clasping, oblong-oval, obtuse: corymbs terminal brachiate, dense-flowered: divisions of the calyx lanceolate, acute.

perforatum (O. y. J. ♃.) erect, branching: stem 2-edged: leaves oblong, obtuse, transparently-punctate: panicle terminal, brachiate, leafy: petals twice as long as the acute lanceolate calyx. This is the common St. John's wort, so troublesome to farmers.

HYPNUM, 108.

1. *Capsules drooping: leaves 2-rowed.*

denticulatum (sleeping moss.) leaves ovate, pointed, nerveless, entire, close: capsule oblong, lid conic.

serrulatum, creeping, much branched: leaves ovate-lanceolate, pointed, serrate, 1-nerved at bottom, crowded, spread: lid awlform.

riparium, branched, spread: leaves ovate, pointed, entire, 1-nerved, rather remote: lid conic.

2. *Capsules drooping: leaves imbricate every way.*

splendens, doubly pinnate: leaves lance-ovate, pointed, concave, nerveless, close-pressed: capsule ovate, lid curved.

delicatulum, procumbent, doubly-pinnate: leaves heart-lanceolate, pointed, 3-nerved: lid awlform: teeth of inner fringe imperforate.

abietinum, pinnate, compressed, villous: leaves hearted, pointed, entire; 3-striate, appressed, lid conic.

adnatum, creeping, with nearly simple branches: leaves oblong-lanceolate, concave, entire, nerveless, lid conic.

intricatum, creeping: leaves linear-lanceolate, pointed, serrate, 1-nerved at bottom: capsule ovate: lid conic.

serpens (W. M.) creeping: leaves lance-ovate, pointed, entire, 1-nerved at bottom: capsule cylindric: lid bossed.

filamentosum, branches numerous, interwoven: leaves ovate, entire, 1-nerved, appressed, capsule ovate: lid conic.

lutescens, procumbent, much branched: leaves lance-pointed, 3-nerved, entire: capsule cylindric: lid conic, pointed.

illecebrum, with scattered obtuse branches: leaves ovate-oval, concave, obtuse with a point, obsoletely 1-nerved.

cuspidatum, pinnate, cuspidate: leaves oblong-ovate, cuspidate, entire, nerveless: lid conic, acute.

3. *Capsule drooping: leaves spreading every way.*

spiniforme (W. M.) erect, simple: leaves linear awlform, serrulate, ending in a bristle: capsule ovate: lid oblique.

striatum, much branched: leaves ovate-deltoid, acute nearly entire, striate below: lid awlform, curved.

stellatum, erect, branched: leaves ovate lanceolate, pointed, nerveless, entire: capsule cylindric: lid conic.

squarrosum, irregularly pinnate: leaves heart-ovate, pointed, entire, nervless, incurved, keeled: lid conic.

4. *Capsules drooping: leaves falcate, pointing one way.*

cupressiforme, prostrate, pinnate: leaves ovate-awlform, concave, nerveless, close imbricate: lid cuspidate.

commutatum, procumbent, pinnate: leaves ovate-awlform, tortile, 1-nerved at bottom: capsule oblong, lid conic.

molluscum, procumbent, close pinnate: leaves ovate-awlform, close imbricate, nerveless: capsule ovate, lid conic.

Hypoxis, 49.

erecta (star-grass. Y. H. C. A. P. N. y. Ju. 4.) pilose: scape 2 or 3-flowered: leaves lance-linear: divisions of the corol lance-oblong.

graminea (C. Ju. 4.) pilose: scape 4-flowered: leaves long, grassy: divisions of the corol lance-linear.

Hyssopus, 68.

officinalis (hyssop. E. Ju. 4.) flowers whorled, racemes one-way: intermediate division of the corol 2-lobed, entire: leaves lance-linear.

nepetoides (giant hyssop. P. W. g-y. Ju. 4.) spikes whorled, cylindric: styles shorter than the corol: leaves subcordate, ovate, acuminate, acutely toothed. Near Williams College and in Pownal it grows from 4 to 7 feet high.

scrophularifolius (P. p. Ju. 4.) spikes whorled, cylindric: styles longer than the corol: leaves heart-ovate, acuminate, obtusely toothed. About 2 feet high.

These two species seem to be the same. The species at Williamstown has the styles much longer than the corol; while its size, colour of the corol and the other characters, make it the nepetoides.

I.

IBERIS, 74.

umbellata (candy tuft. E. w. Ju. ☉.) leaves lanceolate, acuminate; lower ones serrate, upper ones entire.

ILEX, 36.

canadensis (mountain holly. W. Y. H. Catskill Mt. g-y. M. ♄.) leaves deciduous, ovate, entire or a little serrate at the apex, glabrous: peduncles subsolitary, long, 1-flowered: fruit somewhat 4-sided. A shrub 3 to 5 feet high. Grows on the mountain northeast of Williams College.

opaca (evergreen holly. Y. C. H. P. g-w. M. ♄.) leaves evergreen, ovate, acute, spinose, glabrous, flat: flowers scattered at the base of the shoots of the preceding year. A middle size tree.

laxiflora (Connecticut? g-w. J. ♄.) leaves ovate, sinuate-toothed, spinose, shining, flat: peduncles above the axils on the younger branches. An evergreen shrub. Berries yellowish red. I do not know that this grows in Connecticut. I saw the dried leaves only of a shrub from the southwest part of that state, which agreed with the above description.

ILLECEBRUM, 42.

capitatum (head knotgrass. E. 4.) bracts shining, hidden under the terminal head: leaves ciliate, villose beneath.

IMPATIENS, 42.

balsamina (balsam weed. E. y. Au. ☉.) peduncles aggregate, 1-flowered: leaves lanceo-

late, upper ones alternate : nectary shorter than the flowers.

nolitangere (jewel-weed, touch-me-not. O. y. Ju. ☉.) peduncles many flowered, solitary : leaves ovate, obtusely toothed : joints of the stem tumid.

biflora (speckled jewels. W. P. y. & r. Ju. ☉.) peduncles mostly 2-flowered, solitary : leaves ovate, sharply toothed. Is not this a variety of the last ?

Imperatoria, 46.

ostruthium (masterwort. N. ♃.) leaves ternate, broadish, serrate. This plant grows wild about Northampton, and there appears no evidence of its being of exotic origin.

Indigofera, 79.

tinctoria (indigo. E. ♄.) leaves pinnate, oblong, glabrous, in four pairs : racemes shorter than the leaves : legumes terete, somewhat arched. From the East Indies.

Inula, 86.

helenium (elecampane. O. y. Au. ♃.) leaves clasping, ovate, rugose, tomentose beneath : scales of the calyx ovate.

falcata (C. y. S. ♃.) woolly : leaves sessile, linear, very acute : subfalcate, nerves hairy both sides : peduncles few, axillary, corymbed : calyx and peduncle villose. 5 or 6 inches high.

mariana (C. y. Au. ♃.) villose : leaves sessile, lance-oblong, tapering to the base, obtuse, glandular-toothed, lower ones petioled, serrate : peduncles axillary, corymbed, glandular-hairy. About 12 or 14 inches high.

argentea (P. y. ♃.) silky : leaves lanceolate, 3-

nerved, erect, zigzag; corymb subcompound, erect: scales of the calyx flat, pubescent.

Ipomaea, 39.

quamoclit (jasmine bindweed. P. r. w. Au. ☉.) leaves pinnatifid linear: flowers subsolitary; corol subtubular.

coccinea (Southern states. y-r. Ju. ☉.) pubescent: leaves cordate, acuminate, subangled: peduncles about 5-flowered: calyx awned: corol tubular: limb subentire.

lacunosa (P. w. & p. J. ☉.) glabrous: flowers cordate, acuminate, scrobiculate, angled at the base: peduncles short, about 1-flowered: calyx hairy: corol tubular, short: capsules hairy.

bona-nox (Southern states. w. Ju. ☉.) very glabrous: leaves cordate, entire or angled: peduncle 1 to 3-flowered: calyx awned: corol undivided, tube long.

nil (common morning-glory. P. b. Ju. ☉.) hirsute: leaves ventricose 3-lobed: peduncles short, 1 or 2-flowered: bracts subulate: calyx very villose, long-acuminate.

purpurea (E. J. ☉.) pubescent: leaves cordate, entire: peduncles 2 to 5-flowered: pedicels nodding, thickened: divisions of the calyx lanceolate: capsules glabrous.

Iris, 28.

pumila (dwarf flower-de-luce. E. b. M. 4.) bearded: scape 1-flowered: leaves ensiform, glabrous: tube of the corol exsert: petals oblong, obtuse.

prismatica (New-Jersey. p. Ju. 4.) beardless: stem solid, terete, equalling the leaves: leaves very narrow, long: capsules elongated, prismatic, acute at both ends.

cristata (ladies' flag. Southern states. b. M. 4.) flowers with bearded crests: stem very short, compressed, about 1-flowered: leaves sword-form, of the length of the flower: divisions of the corol equal.

virginica (wild flag, wild iris. O. b. p. y. J. 4.) beardless: stem 2-edged, many-flowered, taller than the ensiform leaves: stigmas shorter than the inner petals: capsules oblong, with furrowed angles.

gracilis (Boston iris. Y. H. C. b. & y. J. 4.) petals beardless, inner ones erect: leaves linear, flat: germ triangular, with 2 grooves on each side. Bigelow. I found this species in great plenty at New-Haven, in a meadow near the north side of Pine-rock, half a mile east of Mr. Lewis Bradley's. This species had been called a variety of the *virginica*, until Dr. B. gave the specific distinctions.

ochroleuca (yellow iris. E. y. M.) beardless: leaves ensiform, depressed, striate: scape subterete: germ 6-cornered.

verna (Southern states. b. & p. M. 4.) beardless, stemless, 1-flowered: leaves very long, grassy, glaucous: tube long: petals sub-equal: capsules roundish, sessile at the ground.

versicolor (C. P. p. J. 4.) beardless: stem terete, zigzag, equalling the leaves: leaves ensiform: stigmas equalling the inner petals: capsules ovate, angles obtuse.

Isanthus, 68.

coeruleus (blue gentian. C. P. b. Ju. ☺.) viscid-hairy: leaves lance-oval, acute at both ends, 3-nerved: peduncles 1 or 2-flowered.

Isatis, 73.

tinctoria (woad. E. ♄.) radical leaves crenate; cauline ones sagittate, oblong.

Isidium, 114.

dactylinus (coral lichen) effuse, rugged-warty, somewhat cracked, papillary-branched, white: warts long, cylindric, strait, clustered, solid, their tips becoming brown and bursting in cracks: globules, when naked, a little convex.

corallinus, tartarous, areolate [like a garden bed] warty-branched, grey-white: globes of the branches of the same colour: globules punctiform, brownish.

westringii, tartarous, cracked, unequal, pale grey; in angular, naked and slightly branched patches: globules of the branches brown. Used to form a red dye.

oculatus, leprous, papillary, white; warts topform: globules when naked plano-depressed, becoming convex, black.

Isnardia, 35.

palustris (water purslane. O. g. J. 4.) leaves ovate, entire: flowers axillary, solitary, sessile. In water and wet places.

Itea, 42.

virginica (itea. P. w. J. ♄.) leaves oblong, serrate. 4 to 6 feet high.

Iva, 88.

frutescens (hig-water shrub. H. Y. C. P. g. Au. ♄.) leaves lanceolate, punctate-scabrous, deeply serrate: glomerules of florets globose, depressed. Somewhat shrubby, 3 or 4 feet high. Grows along the margins of salt marshes, &c.

J.

Jasminum, 25.

fruticans (jasmine. E. y. ♄.) leaves alternate, ternate, simple: leafets obovate, wedgeform, obtuse: branches angled.

officinale (jasmine. E. w. ♄.) leaves pinnate, opposite: leafets acuminate.

Jeffersonia, 54.

diphylla (twin leaf. P. w. M. 4.) stemless: peduncles naked, 1-flowered: leaves in pairs. Podophyllum diphyllum. Lin.

Juglans, 94.

1. *Staminate ament simple, polyandrous.*

regia (madeira nut. E. M. ♄.) leafets about 9, oval, glabrous, subserrate, subequal: fruit globose. Var. *fraxinifolia*, has 9 or 10 leafets, oblong, serrate, smooth, lateral lower one adnate on the common petiole. It is said that this variety is indigenous to North America.

nigra (black walnut. P. C. M. ♄.) leafets numerous, lance-ovate, serrate, subcordate, narrowed above; petioles and under sides of the leaves subpubescent, fruit globose, with scabrous punctures; nut wrinkled.

cinerea (butternut. O. M ♄.) leafets numerous, lanceolate, serrate, rounded at the base, soft pubescence beneath; petioles villose: fruit oblong-ovate, viscid, long-peduncled; nut roughly sculptured. The bark is a strong cathartic.

2. *Staminate ament compressed, tetrandrous.*

sulcata (P. M. ♄.) leafets about 9, oblanceolate, acuminate, serrate, pubescent beneath; the

terminal leafet subsessile, tapering to the base : fruit roundish, 4-keeled : nut subglobose, a little compressed, smooth, mucronate.

squarrosa (shag-walnut, shag hickory. O. M. ♄.) leafets about 7, long-petioled, lance-oblong, acuminate, sharply serrate, villose beneath, terminal one sessile : ament filiform, glabrous : fruit globose, drepressed ; nut compressed, oblique.

tomentosa (white-heart hickory. P. New England. M. ♄.) leafets about 9, lance-oblong, acuminate, slightly serrate, pubescent, scabrous beneath, terminal one subpetioled : aments filiform, very long, tomentose : fruit subglobose, smooth ; nut sub-6-angled.

amara (bitter nut. A. C. Y. P. M. ♄.) leafets about 9, ovate-oblong, acuminate, sharply serrate, glabrous both sides, the odd one short-petioled : fruit subglobose, above the sutures are prominent ; nut subglobose, mucronate, putamen brittle.

porcina (pig-nut. O. M. ♄.) leafets about 7, lanceolate, acuminate, serrate, glabrous both sides ; terminal leafet subsessile : fruit pear-form, or globose ; nut smooth, very hard. Var. *obcordata*, has obcordate nuts. Var. *ficiformis*, has turbinate fruit.

JUNCUS, 51.

1. *Culms leafless.*

effusus (rush-grass. O. J. ♃.) culm strait : panicle lateral, spread, more than decompound : capsules obtuse. Resembles the Scirpus acutus in habit.

acutus (New-Jersey. Ju. ♃.) culm terete : panicle terminal : involucre 2-leaved, spinose capsules roundish, mucronate. Sea coast.

setaceus (W. Y. P. Ju. ♃.) culm filiform, nodding

umbels lateral, compound, few-flowered : peduncles many-flowered : calyx subulate.

squarrosus (C. 2.) leaves squarrose, setaceous 2-ranked : little heads terminal, glomerate, leafless.

marginatus (C. P. J. 2.) leaves flat, glabrous : corymb terminal, simple, proliferous ; little heads about 10-flowered : calyx equalling the obtuse capsule.

nodosus (W. C. P. Ju. 2.) leaves with notted joints, terete : corymb simple : little heads globose ; capsules acuminate, longer than the calyx.

2. *Culms leafy.*

polycephalus (W. Y. P. J. 2.) stem erect, few-leaved : leaves with notted joints : little heads globose, many-flowered, subpanicled : calyx linear, triandrous. Var. *tenuifolius* has filiform leaves.

sylvaticus (P. Ju. 2.) culm erect : leaves terete, with notted joints : panicle more than decompound : leafets of the calyx awned, interior ones longer.

fluitans (floating reed-grass. P. Ju. 2.) stem decumbent : leaves setaceous : flowers glomerate, whorled ; glomerules leafy.

acuminatus (C. P. Ju. 2.) culm leafy, erect : leaves somewhat notty-jointed : panicle terminal, compound glomerules about 3-flowered, peduncled and sessile : calyx slender, acuminate. Triandrous.

bulbosus (C. Ju. 2.) stem subcompressed, undivided : leaves linear channelled : corymb terminal : calyx obtuse, shorter than the roundish obtuse capsule. On dry ground.

tenuis (O. J. 2.) culm leafy, simple, teretish : leaves channelled : corymb terminal, dichotomous, shorter than the bracts : capsule oblong, obtuse, shorter than the calyx.

bufonius (W. Y. C. J. ☺.) culm leafy, dichotomous : leaves angled, subsetaceous : flowers oblong, solitary, sessile.

spicatus (Whitehills. Au. Big.) leaves flat : spike racemed, nodding, compound at the base : capsules acute.

Remark. The three following species have been placed under genus Luzula by Willdenow, Desvoux and some others.

pilosus (A. W. P. Ap. ♃.) leaves flat, hairy : corymb subsimple : peduncles single-flowered, nodding : petals ovate, acute, shorter than the capsule.

campestris (O. Ap. ♃.) leaves flat, with long fine hairs : spikelets peduncled, somewhat nodding, intermediate one sessile : leafets of the calyx mucronate, longer than the obtuse capsule.

melanocarpus (Whitehills. Ju.) culm leafy ; leaves broadish, sublanceolate, glabrous : panicle capillary, very lax : flowers distinctly pedicelled : capsules becoming black.

JUNGERMANNIA, 109.

1. *Caulescent : branches compound, pinnate.*

porella (false moss) branches flowering in the middle : flowers nearly sessile : sheaths inflated : leaves obovate.

viticulosa, leaves flat, naked, linear.

polyanthos, leaves entire, imbricate, convex.

scalaris, leaves entire, ovate, 2-rowed : extremity of the stem bearing the staminate flowers.

lanceolata, fronds lanceolate : leaves entire : fruit terminal.

bidentata, leaves ovate, 2-toothed.

connivens, creeping, branched : leaves ovate, a little concave, cloven, with acute converging lobes : flowers terminal.

bicuspidata, leaves roundish, emarginate, 2-rowed: flowers terminal.

2. *Caulescent: fronds imbricate.*

complanata, creeping: leaves appendaged beneath, doubly imbricate: branches equal.
tamariscifolia, leaves doubly imbricate, roundish, appendaged beneath: stipules ovate, emarginate: fruit terminal.
tomentella, creeping, downy above: leaves entire, downy.
pusilla, shoots very short, flowering at top: leaves imbricate, crenate on the fore part.

3. *Stemless.*

epiphylla, leafet on the frond.
pinguis, frond oblong, sinuate, slippery.

JUNIPERUS, 101.

sabina (savin. Can. ♄.) leaves opposite, obtuse, glandular in the middle, imbricate four ways, delicate, acute, opposite. A low shrub in the clefts of rocks. That which is cultivated is from Europe.
prostrata (american savin. O. ♄.) leaves opposite, acute, imbricate about 4 ways, smooth glaucous: branches horizontal or prostrate. Very plenty in Pownal, four miles north of Williams College. A shrub.
virginiana (red cedar. O. M. ♄.) leaves in threes, adnate at their bases; in the young state they are imbricate, older they become spreading. Hardly a middle sized tree.
communis (juniper. A. Y. N. Montgomery county. C. M. ♄.) leaves in threes, spreading, mucronate, longer than the berry. On the sand plains, at the foot of Pine-rock, in New-Haven, a root of it often sends off shoots, about 3 feet

in length, so close to each other, as to make a kind of mat 12 or 14 feet in diameter.

Justicia, 26.

adhatoda (malabar nut. E. p. ♄.) leaves lance-ovate: bracts ovate, nerved, permanent: helmet of the corol concave.

K.

Kalmia, 57.

latifolia (laurel. O. r. Ju. ♄.) leaves long-petioled, scattered and in threes, oval, smooth both sides: corymbs terminal, with viscid hairs. Generally 4 or 5 feet high. But on Catskill mountain it is found more than 20 feet high.

angustifolia (sheep laurel. O. J. ♄.) leaves in threes, petioled, oblong, obtuse, sometimes rusty beneath: corymbs lateral: bracts linear: peduncles and calyx with glandular hairs. A shrub one or two feet high.

glauca (swamp laurel. P. N. Plainfield and Hinsdale, Mass. r. M. ♄.) branchlets 2-edged: leaves opposite, subsessile, oblong, smooth, glaucous beneath, margin revolute: corymb terminal, bracted: peduncles and calyxes very glabrous.

Krigia, 83.

virginica (dwarf-dandelion. Y. C. P. N. y. M. ☉.) small: leaves lyrate, glaucous, smoothish, ciliate: scape 1-flowered, twice as long as the leaves: calyx about 8-leaved.

Kuhnia, 84.

eupatorioides (false boneset. P. w. Au. 2/.) glab-

rous: leaves petioled, broad-lanceolate, serrate: corymb terminal, few-flowered, compact.

gritonia (P. y. Au. ♃.) pubescent: leaves narrow-lanceolate, about 2-toothed below, petioled, punctate beneath; upper ones linear entire, sessile: panicle terminal, spreading.

Kyllingia, 28.

monocephala (false bog-rush. New-Jersey. ♃.) culm filiform, 3-sided: heads globose, sessile; involucres 3-leaved, very long.

L.

Lactuca, 82.

sativa (lettuce. E. y. Ju. ☺.) leaves roundish; cauline ones cordate: stem corymbed. Var. *romana* has oblong strait leaves, narrowed at the base. Var. *crispa* has sinuate-crenate leaves, toothed, undulated, crisped; radical ones hairy on the keel. Var. *laciniata* has the lower leaves pinnatifid and the upper ones runcinate.

elongata (wild lettuce. O. y. J. ☿.) leaves smooth beneath, lower ones runcinate, entire, clasping; lowest ones toothed, highest ones lanceolate: flowers corymb-panicled. 3 to 6 feet high.

Lamium, 68.

garganicum (dead nettle. E. ♃.) leaves cordate, concave: throat of the corol inflated, tube short.

purpureum (C. p. ☺.) leaves cordate, obtuse, toothed, petioled, crowded at the top: stem nakedish downwards.

amplexicaule (henbit, dead-nettle. Q. p. M. ☺.)

floral leaves sessile, clasping, gashed : radical leaves lobed.

Lapathum, 10.

acetosellum (field sorrel. O. g. & p. M. 4.) leaves lance-hastate, auricled, entire. This and the next species are very properly separated in a section from the genus Rumex by Persoon. As they differ from the other species essentially in qualities and habit, as well as in being uniformly dioecious, I have taken Persoon's section for a genus.

acetosum (garden sorrel. E. 4.) stem elongated ; leaves oblong, sagittate, acute, clasping.

Lathyrus, 79.

stapulaceus (wild vet chling. C.) stem winged, 4-cornered : stipules half-sagittate, ovate, acuminate, large : leafets in 3 pairs, oval-ovate, obtusish mucronate : peduncles 4 or 5-flowered. Torrey. A new species, discovered by J. Le Conte, Esq.

palustris (C. Can. w-p. Ju. 4.) stem winged : stipules lance-semisagittate : leafets six, lance-linear, acute : peduncles about 3-flowered.

myrtifolius (C. P. r. Ju. 4.) stem naked, 4-cornered : stipules semisagittate, lanceolate, acuminate : leafets 4, lance-oblong, acute, mucronate, net-veined : peduncles longer than the leaves, about 3-flowered.

venosus (P. p. Ju. 4.) stem naked, 4-cornered : stipules semisagittate, ovate, acuminate : leafets numerous somewhat alternate, ovate, obtuse, mucronate, veiny, peduncles 5, shorter than the leaves.

odoratus (sweet pea. E. J. ☺.) peduncles 2-flowered : tendril with 2 ovate-oblong leafets : legumes hirsute.

latifolius (everlasting-pea. E. Au. ♃.) peduncles many flowered : tendril with 2 lance-ovate leaves ; membranaceous between joints.

clymenum (various pea. E. ☉.) peduncles 2-flowered : tendril with many lanceolate leafets ; stipules toothed.

articulatus (jointed pea. E. Ju. ☉.) peduncles about 1-flowered : tendril with many alternate lanceolate leafets : legume jointed.

sativus (chick-vetch. E. ☉.) peduncles 1-flowered : tendrils with 2 and 4 leafets : legumes ovate, compressed with two narrow wings on the back.

Laurus, 55.

camphoratus (camphor-tree. E. ♄.) leaves about 3-nerved, lance-ovate : panicle spreading. From Japan.

benzoin (spice-bush, fever-bush. O. g. y. Ap. ♄.) leaves wedge-obovate : flowers in umbelled glomerules. A shrub from 4 to 8 feet high, spicy tasted.

sassafras (sassafras tree. O. y. M. ♄.) leaves entire and lobed on the same plant. Size from a low shrub to a smallish tree. The bark of the root is very fragrant. The gum is useful for inflamed eyes. Silliman.

Lavandula, 68.

spica (lavender. E. Au. ♃.) leaves sessile, lance-linear, with revolute margins : spike interruptedly naked.

Lavatera, 77.

thuringiaca (gay mallows. E. ♃.) lower leaves angled ; upper ones 3-lobed, with the middle one longest : peduncles solitary.

arborea (tree mallows. E. S. ♄.) leaves 7-angled: peduncles crowded.

Lechea, 33.

major (pin-weed. O. g-p. Ju. ♃.) hirsute: leaves lance-oblong, mucronate: panicle leafy: branches bearing flowers at their tops: flowers in fascicled racemes, one way, short-pedicelled: stem erect. A dull unsightly weed, in barren fields, about one foot high.

minor (O. g-p. Ju. ♃.) smoothish: leaves lance-linear, acute: panicle leafy: branches elongated, bearing flowers on all parts: stem ascending.

racemulosa (C. Ju. ♃.) pubescence close-pressed: leaves linear, acute, ciliate: panicle slender very branching, nakedish: flowers small, alternate, pedicelled: stem erect.

Lecidea, 112.

1. *Frond crustaceous, uniform.*

incana, crust thin, somewhat membranous, grey glaucous: spangles hoary.

lepiphaema, thin, milk-white: spangles very minute, nearly palish-white.

muscorum, whitish, thin, somewhat mealy: spangles flat, margined, black, becoming hemispheric, confluent.

immersus, greyish-white, smooth: spangles immersed, margined, black; becoming convex, deciduous.

parasemus, greyish, thin, uninterrupted, edged with black: spangles black, flattish, margined, becoming convex.

lapicidus, tartarous, broad, a little rugged in the divisions, grey; spangles depressed, flattish,

crowded, becoming unequal angular and confluent, black.

albo-caerulescens, tartarous, equal, uninterrupted, white: spangles raised, the disk flat, bluish-white, frosty: margin becoming zigzag, black.

corticolus, effuse, cracked, pure-white: spangles flat, close-pressed, minute, crowded, becoming somewhat globular, black, grey-mealy.

pruinosus, leprous, very thin, rusty-red: spangles plano-convex, deformed, bluish-black, mealy.

icmadophilus, effuse, granular, unequal, pale, greenish-grey: spangles flat, flesh-colour, becoming dilated and a little convex, with a thin zigzag margin.

russula, rugged, garden-bed-like, white: spangles flat, deep red, becoming rusty-brown.

obscurus, leprous somewhat nearly, blackish-brown: spangles margined, dull rusty becoming blackish.

2. *Frond crustaceous, imbricate or lobed.*

luridus, imbricate: lobes orbicular, crenate, brownish-green, paler beneath: spangles black, becoming convex.

smithii, imbricate: lobes crenate, greenish, white beneath: spangles deformed, yellowish.

3. *Frond leafy, peltate.*

postulatus, navelled, membranous, lobed, greenish-grey, blistered and warty above, dark olive and deeply pitted beneath: spangles flat, black; margined, becoming plaited.

pensylvanicus, navelled, somewhat membranous grey-brown, wrinkled and blistered above, black-brown, pitted and granular beneath: spangles flattish black with a margin somewhat zigzag.

Ledum, 57.

palustre (marsh-tea. Can. w. M. ♄.) leaves linear, margins revolute, iron-rust down beneath: stamens longer than the corol.

latifolium (labrador-tea. P. Pittsfield, Mass. James. w. r. J. ♄.) leaves linear-oblong, folded in at the margin, iron-rust down beneath: stamens mostly 5, equalling the corol. About swamps.

Ledum, see Leiophyllum.

Leersia, 31.

lenticularis (white grass. Y. Ju. ♃.) branches of the panicle sub-solitary; spikelets imbricate: glumes orbicular, ciliate, large. Mr. Leavenworth, a pupil of Prof. Ives, found this species three miles from Yale College. Heretofore it has been found only west of the Allegany mountains.

virginica (cut grass. W. C. P. Ju. ♃.) panicle scattered: spikelets spreading: glumes oblong-oval, keel ciliate. In water and wet ground. A very rough harsh grass.

Leiophyllum, 57.

thymifolium (sleek-leaf.) leaves ovate, obtuse, glabrous; umbels terminal, head-form, sessile. From Ledum. Per.

Lemna, 90.

trisulca (duck meat. P.) leaves lanceolate, tapering into the petiole, adhering together cross-form: root single.

minor (green duck meat. H. W. C. P. J. ☉.) leaves round-oval, flat, adhering by their bases,

a single root proceeding from the under side of each leaf.

polyrhiza (water flaxseed. W. P. Ju. ☉.) leaves round oval flat, adhering by the bases: several roots proceed from the under side of each leaf in a fascicle. The leaves of this species become purplish and greatly resemble flaxseed, scattered on the surface of the st nt waters. The roots rarely reach the gro d; but merely extend downwards a few inches into the water.—The flowers proceed from fissures in the edges of the leaves.

Leontodon, 82.

taraxacum (dandelion. O. y. Ap. 4.) outer calyx reflexed: scape 1-flowered: leaves runcinate, with toothed divisions.

Leonurus, 69.

cardiaca (motherwort. O. w-r. Ju. 4.) leaves 3-lobed, toothed, bases wedge-form: calyx prickly, less than the corol.

Lepidium, 74.

sativum (peppergrass, E. w. Ju. ☉.) leaves oblong, many-cleft.

virginicum (wild peppergrass. Y.C.P.J. ☿.) radical leaves pinnatifid, cauline ones lance-linear, somewhat gash-serrate: flowers 4-petalled, mostly with but two stamens: silicles lens-form.

Lepraria, 111.

chlorina (leprous lichen.) no visible frond; thick, deep yellow.

alba, crustaceous frond and fruit pure white.

incona, crust thin, submembranous, grey-glaucous: fruit hoary.

lutescens, leprous, a little cracked, rugged, yellowish: fruit globular, of the colour of the frond.
flava, thin, mealy, bright golden yellow.

LEPTANTHUS, 28.

graminea (floating grass-weed. P. y. Ju. 4.) leaves all linear. Grows in Fishkill and back of Newburgh. Torrey.

Leptanthus, see Heteranthera.

LESKEA, 108.

squarrosa, erect, slightly branched: leaves 5-rowed, reflexed: capsule oblong, inclined: lid subconic, acute.
attenuatum, simple, proliferous: leaves stellate, ovate, acute, entire, reticulate: capsule clavate, erect.
rostratum, simple: leaves obovate, spatulate, very obtuse, minutely serrate: capsule ovate, pendulous: lid subulate.

LESPEDEZA, 81.

sessiliflora, (bush clover. C. H. P. p. Ju. 4.) erect: leaves oblong: fascicles of flowers sessile, numerous: loment nearly naked, acute; calyx minute.
violacea (C. H. Y. P. p. Ju. 4.) very branchy, spreading: leaves long-petioled: leafets oval, obtuse, with close-pressed hairs beneath: racemes short, umbelled: flowers in pairs: loment rhombic, reticulate, glabrous.
procumbens (C. P. p. y. J. 4.) procumbent, slender, hairy: leaves oval: peduncles long: legumes naked, with minute calyx.
capitata (N. C. H. P. Y. w-p. J. 4.) erect, sim-

ple: leaves subsessile; leafets oval: spikes capitate, short-peduncled, axillary and in terminal glomerules: calyx villose, of the length of the corol: loment much smaller than the calyx.

polystachia (W. N. P. Y. C. H. w-r. Ju. 4.) erect, branching, very villose: leaves subsessile; leafets round oval: spikes axillary, long-peduncled: corol and loment about equal to the calyx.

Liatris, 83.

spicata (gay feather. New Lebanon. P. C. r. Au. 4.) stem simple, tall: leaves linear, glabrous, ciliate at the base, nerved and punctate: spike very long: flowers sessile: scales of the calyx linear-oblong, obtuse, close-pressed.

scariosa (P. Au. 4.) stem simple, subpubescent: leaves lanceolate, tapering to both ends, glabrous with scabrous margins: calyxes squarose below, racemed, alternate, distant; scales spatulate, with membranous coloured margins.

squarrosa (C. N. Y. r. Au. 4.) stem simple, hairy: leaves long-linear, nerved, margins a little scabrous: raceme few-flowered: scales of the calyx leafy above, lanceolate, rigid, spreading.

pilosa (New-Jersey. p. S. 4.) stem simple, pubescent: leaves linear, pilose, ciliate: calyxes racemed, laxish; scales linear-oblong, obtusish: pedicels bracted.

aspera (C. p. Au. 4.) stem subramose, scabrous-hairy: leaves lance-linear, rough: calyxes short, spiked, distinctly alternate, solitary, sessile, scales round-obtuse, converging.

Ligusticum, 45. [Wrongly called exotic.]

levisticum (lavage. smellage. E. w. 4.) leaves long, numerous; leafets above gashed. Strong scented.

scoticum (Can. Ju. ♃.) cauline leaves biternate, upper ones trifoliate; lateral leafets trapezoid, terminal one rhomboid: umbels stifly erect: involucres many-leaved.

acteaefolium (C. Ju. ♃.) petioles doubly 3-parted, secondary divisions with 2 or 3 leafets; leafets equally toothed: involucels setaceous: fruit oval, oblong-oval, subulate, 10-ribbed.

Ligustrum, 26.

vulgare (prim. Y. C. P. w. J. ♄.) leaves lanceolate, acutish: panicle compact. Common in the woods about New-Haven. Though it may have been introduced.

Lilium, 50.

candidum (white lily. E. w. J, ♃.) leaves lanceolate, scattered, tapering to the base: corol bellform, glabrous within.

catesbaei (southern lily. P. y-r. J. ♃.) leaves scattered, lance-linear: stem 1-flowered: corol erect; petals with long claws, margin undulate, apex reflexed. About a foot high.

superbum (superb lily. P. Y. A. C. Catskill. y. p. Ju. ♃.) leaves lance-linear, 3-nerved, glabrous, lower ones whorled, upper ones scattered: flowers in a pyramid-raceme, reflexed; petals revolute. 3 to 6 feet high.

canadense (nodding lily. O. y. r. Ju. ♃.) leaves remotely whorled, lanceolate, 3-nerved, subhirsute beneath at the nerves: peduncles terminal, longated, mostly in threes: corol nodding, raceme spreading.

philadelphicum (red lily. O. r. y. J. ♃.) leaves whorled, lance-linear: stem about 2-flowered: corol erect, bellform, spreading: petals lanceolate, having claws.

pennsylvanicum (P. r. y. Ju. ♃.) leaves scattered,

lance-linear; the uppermost ones whorled, about equal to the flowers: stem about 1-flowered, somewhat 5-sided: peduncles woolly: corol erect, woolly outside.

Limnetis, 29.

juncea (rush salt-grass. Y. H. C. P. Ju. ♃.) leaves 2-ranked, shortish, setaceous-convolute: spikes few, remote, spreading: calyx acuminate, keel rough.

polystachia (many-spiked saltgrass. Y. H. C. P. Au. ♃.) spikes many (10) approximate on a 3-cornered rachis, scabrous, short-peduncled: leaves flat, the margins scabrous; sheath striate glabrous: one valve of the corol hispid on the keel.

glabra (Y. H. C. P. Ju. ♃.) spikes 6 to 10, close-pressed: rachis compressed and 3-sided, glabrous, with sessile florets, leaves convolute, nerved, pungent, glabrous: calyx and corol awnless. The genus Spartina. Roth.

Limodorum, 89.

unifolium (limodore. New-Jersey. w.) having but one leaf.

Limosella, 71.

subulata (mudwort. Y.) leaves radical, cylindric, twice as long as the scape. Very minute. This is a new species, first discovered by professor Ives on the banks of the Housatonick, in the summer of 1816; and afterwards it was found by Messrs. Nuttall and Collins, on the banks of the Delaware.

Lindernia, 26.

attenuata (lindern. C. P. b. Au. ☺.) leaves repand-toothed : peduncles short.

dilatata (P. C. b. Au. ☺.) leaves oblong-ovate, obsoletely toothed, sessile : peduncles axillary, 1-flowered.

Linnaea, 34.

borealis (twin-flower. W. P. N. Catskill. Plainfield, Mass. w-r. J. ♃.) stem prostrate : branches erect, each bearing 2 flowers : leaves roundish, crenate forward. Most of the Plainfield specimens are didynamous.

Linum, 48.

usitatissimum (flax. E. b. Ju. ☺.) leafets of the calyx ovate, acute, 3-nerved : petals crenate : leaves lanceolate, alternate : stem subsolitary.

virginianum (wild flax. Y. N. C. P. W. y. Ju. ☺.) leafets of the calyx acute : panicle terminal : flowers remotely alternate : leaves lance-linear, scattered ; radical ones ovate.

perenne (garden flax. E. b. Ju. ♃.) calyxes and capsules obtuse : leaves alternate, lanceolate, entire : stems numerous.

Liquidambar, 95.

styraciflua (sweet-gum. C. P. N. Chatham, New-York. M. ♄.) leaves palmate, with acuminate lobes, serrate, villose at the meeting of the veins beneath.

Liquiritia, see Glycyrrhiza.

Liriodendron, 67.

tulipifera (white wood, tulip tree. A. N. Catskill. P. y. r. J. ♄.) leaves truncate at the end, with 2 side lobes. A beautiful flowering tree. The timber is useful to cabinet makers. It is also a useful tonic. See Barton's Veg. Mat. Med.

Lithospermum, 36.

officinale (stone seed, gromwell. P. y. M. ♃.) seed smooth: corol scarcely longer than the calyx: leaves lanceolate, veiny.

latifolium (P. y-w. J. ♃.) seed turgid ovate, shining, with hollowed punctures: calyx spreading, exceeding the corol: leaves ovate-oblong, nerved.

arvense (steen-crout, wheat-thief. O. w. M. ☺.) seed rugose: corol scarcely longer than the calyx: leaves obtuse, veinless.

Lobelia, 41.

cardinalis (cardinal flower. O. r. Ju. ♃.) erect, simple, pubescent: leaves lance-ovate, acuminate, erectly-denticulate: racemes somewhat one-sided, many flowered: stamens longer than corols.

kalmii (W. C. P. Ju. ☺.) slender, erect, subsimple: radical leaves spatulate, cauline ones linear, delicately toothed: flowers racemed, alternate, remote, pedicelled.

pallida (O. b. J. ♃.) somewhat hairy: stem erect, slender, simple: leaves oblong-spatulate, toothed: flowers in a spike.

dortmannia (H. New-Jersey. b. Ju. ♃.) radical leaves linear, recurved, fistulous, with two cavities, entire: scape simple, racemose, somewhat naked; flowers remote, peduncled.

siphilitica (C. P. b. Ju. ♃.) erect, simple, hirsute with short hairs: leaves lance-ovate, subserrate: raceme leafy: calyx hirsute, with reflexed sinuses. Flowers much larger than those of the pallida and inflata.

inflata (wild tobacco. O. b. Ju. ☺.) erect, branching, very hirsute: leaves ovate, serrate: racemes leafy: capsules inflated.

puberula (P. b. Ju. ♃.) erect, very simple, pubescent: leaves oblong-oval, repaud-serrulate: flowers spiked, alternate, subsessile: germs hispid: calyx ciliate.

claytoniana (C. P. b. Ju. ♃.) erect, simple, subpubescent: leaves oblong, obtusish; radical ones entire, cauline ones denticulate above: raceme wandlike: bracts subulate.

Lolium, 32.

perenne (darnel grass. W. C. Y. P. N. H. M. ♃.) spike awnless; spikelets compressed, many-flowered.

tumulentum (P. New England. Ju. ☺.) spikes awned; spikelets compressed, about 6-flowered, equalling the calyx.

Lonicera, 40.

caprifolium (honeysuckle. E. ♄.) corols ringent-like, terminal, sessile: leaves connate-perfoliate at the top.

periclymenum (woodbine. E. J. ♄.) flowers in ovate, imbricate, terminal heads: leaves all distinct. Var. *quercifolia*, leaves sinuate.

fraseri (Catskill Mt. y. J. ♄.) spikes with whorled heads: corol subringent-like with divisions oblong, obtuse: leaves ovate, glaucous beneath, with cartilagenous margin; upper ones connate-perfoliate.

grata (C. r. y. J. ♄.) spike with whorls very near

each other: corol ringent-like, with a long tube: leaves perennial, obovate, submucronate, net-veined and paler beneath, upper ones connate-perfoliate.

parviflora (W. Y. C. P A. N. y. J. ♄.) spikes with whorled heads, subsessile: corol shortish, ringent-like, gibbous at the base: filaments bearded: leaves decideous, glaucous beneath, mostly connate, floral ones perfoliate.

sempervirens (C. P. r. y. M. ♄.) spikes with distant, nakedish whorls: corols subequal, tube ventricose above: leaves ovate and obovate, glaucous beneath, upper ones connate-perfoliate.

hirsuta (rough woodbine. W. y. J. ♄.) leaves hirsute, abruptly acuminate, lower ones obovate. This is a new species found by Mr. E. Washburn, a member of the botanical class at Williams College, in the summer of 1817. It grows in great plenty on a hill two miles west of the college. It twines around trees from left to right to the height of twenty or thirty feet. I have been informed, that Mr. Le Conte had gathered the same plant in the state of New-York, before Mr. W. found it in Williamstown.

Lonicera, see Diervilla and Xylosteum.

Ludwigia, 35.

alternifolia (seed-box. O. y. Ju. ☉. or 2.) erect, branching, subglabrous: leaves alternate, lanceolate, hoary beneath: peduncles axillary, 1-flowered: capsules 4-sided: divisions of the calyx large coloured.

pilosa (New-Jersey. Ju. 2.) erect, branching, hirsute: leaves alternate, oblong, sessile, hirsute, both sides: capsule with 2 bracts at the base.

Lunaria, 73.

annua (honesty. E. p. ♄.) leaves obtusely toothed : silicles oval, obtuse at both ends.

rediviva (satin flower. E. b-p. 4.) leaves with mucronate teeth : silicles tapering to both ends. floweres odorous.

Lupinus, 78.

perennis (wild lupine. O. b. M. 4.) stem and leaves smoothish : leaves digitate with about 8 to 10 leafets, which are oblanceolate, obtusish : calyxes alternate, not appendaged : banner emarginate, keel entire. The keel terminates in a kind of beak when the flowers are first open.

hirsutus (garden lupine. E. b. ☺.) calyxes appendaged, alternate : banner 2-parted, keel 3-toothed.

pilosus (rose lupine. E. r. w. ☺.) calyxes appendaged, whorled : banner 2-parted, keel entire.

luteus (yellow lupine. E. y. ☺.) calyxes appendaged, whorled : banner 2-parted, keel 3-toothed.

villosus (hairy lupine. Southern states. w. r. p. J. 4.) very villose : leaves simple, oblong : calyxes not appendaged, alternate in a long spike : banner 2-cleft, keel entire, long.

albus (white lupine. E. w. Au. ☺.) calyxes not appendaged, alternate : banner entire, keel 3-toothed.

Lychnis, 60.

chalcedonica (scarlet lichnis. E. J. 4.) flowers fascicled, level-top.

viscaria (clammy lichnis. E. 4.) stem geniculate, viscous : petals entire : capsule 5-celled.

flos-cuculi (ragged robin. E. 4.) petals torn : capsule 1-celled, roundish.

Lycium, 34.

barbarum (matrimony. E. r. J. y. ♄.) stem angled; branches erect: leaves lanceolate, tapering to both ends: calyx mostly 3-cleft.
caroliniana (samphire buckthorn. Southern states. p. J. ♄.) stemless: leaves narrow-spatulate.

Lycoperdon, 118.

bovista (common puff-ball. O.) at first white, becoming black and spherical: outer coat downy, which pealing off leaves the leathery inner coat: seeds black, lighter than air, and appearing like smoke.
stellatum (starpuff-ball Y. A. N.) wrapper many-cleft, spread, stellate: head smooth with somewhat pointed mouth at the top.
pyriforme, dirty brownish white: an inch and a half high: base tapering, top pointed.

Lycopodium, 105.

1. *Spikes peduncled.*

clavatum (club-moss. O. g. Ju. ♃.) stem creeping: branches ascending: leaves scattered, incurve-bristle-bearing: spikes in pairs or single, cylindric: scales ovate, acuminate, erose-dentate.
complanatum (ground pine. O. g-y. Ju. ♃.) stem erect: branches alternate, dichotomous: leaves bifarcous, connate, spreading at the tips: peduncles 4-cleft, 4-spiked; spikes terrete.

2. *Spikes sessile, leaves surrounding the stem.*

dendroideum (tree-weed. O. g. Ju. ♃.) stem erect: branches alternate, crowded, dichotomous, spreading; leaves scattered, pointing 6

ways, lance-linear, spreading : spikes solitary terminal. L. obscurum.

annotinum (P. Can. Ju. ♃.) stem creeping ; branches twice 2-parted, ascending : leaves pointing 5 ways, lance-linear, mucronate, spreading and serrulate near the tips : spike solitary, terminal.

inundatum (C. Ju. ♃.) stem creeping, subramose ; branches simple, solitary, erect, 1-spiked at the top ; spike leafy : leaves linear scattered, acute, entire, curved above.

alopecuroides (C. P. Ju. ♃.) stem creeping, subramose ; branches simple, long, ascending, 1-spiked at the top : leaves linear-subulate, ciliate-toothed at the base, spreading : spike leafy.

selaginoides (C. Ju. ♃.) stem creeping : branches simple, ascending : leaves scattered, lanceolate, spreading, ciliate-toothed : spikes solitary terminal, leafy.

rupestre (festoon pine. C. N. P. Ju. ♃.) stem creeping, branching ; branches sub-divided, ascending : leaves scattered, lance-linear, ciliate with hairs at the apex : spikes solitary terminal.

3. *Spikes sessile, leaves 2-ranked.*

albidulum (P. Au. ♃.) leaves ovate acute denticulate, alternate, close-pressed : spikes terminal, long, 4-sided.

apodum (P. Ju. ♃.) leaves round-ovate, acute, flat, denticulate ; with superficial ones, alternate, acuminate : stem branching, rooting near the base : spike terminal, sub-solitary.

4. *Capsules axillary.*

lucidulum (moon-fruit pine. O. y.) leaves pointing 8 ways, lance-linear, denticulate, acute, reflexed-spreading : stem ascending bifid : fruit lunulate.

Lycopus, 26.

europaeus (water-horehound. C. Y. P. w. Ju. ♃.) lower leaves gashed, upper ones lanceolate, serrate : calyx acuminate-spined. Flowers small, whorled.

virginicus (O. w. J. ♃.) leaves broad-lanceolate, serrate, at the base narrowed and entire : calyx very short, spineless. Var. *quercifolius*, leaves sinuate-pinnatifid.

uniflorus (W. w. J. ♃.) leaves lanceolate, subserrate, glabrous ; suckers procumbent. A low plant, with flowers mostly solitary. Mr. W. A. Hallock, found this species three miles north of Williams College. It was hitherto supposed to be confined to Canada.

Lygodium, 105.

palmatum (climbing fern. Granby. Mass. g-y. Au. ♃.) stem climbing : leaves palmate, 5-lobed ; divisions lanceolate, obtuse ; spikelets terminal, compound-panicled. This delicate fern was found in great plenty in Granby, by Mr. Eastman, a member of the botanical class of Williams College. It generally climbs to the height of about 3 or 4 feet. The hydroglosum of Willd.

Lysimachia, 30.

angustifolia (loosestrife. P. y. ♃.) very glabrous, branching : leaves opposite and whorled, long-linear, punctate : racemes terminal, short divisions of the corol oblong.

racemosa (O. y. Ju. ♃.) very glabrous, tallish : leaves lance-oval, opposite : raceme terminal, long, lax : divisions of the corol oblong-ovate. Often bears bulbs in the axils of the leaves. L. stricta. L. bulbifera.

capitata (C. P. y. J. ♃.) glabrous: stem very simple, punctate: leaves opposite, sessile, broad-lanceolate, acute, punctate: peduncles lateral, elongated: flowers in compact heads. L. thyrsiflora.

quadrifolia (O. y. J. ♃.) pubescent: leaves subsessile, oval, acuminate, punctate: whorled or in nearly opposite pairs, with axillary, 1-flowered peduncles: divisions of the corol oval, entire. Near the outlet of the Beaver pond (New-Haven) I found this species with 2, 3, 4, 5, and 6 leaves together; though Linnæus allows but 4.

ciliata, (O. y. J. ♃.) subpubescent: leaves opposite, long-petioled, subcordate-oval, margin pubescent; petioles ciliate: pedicels somewhat in pairs: flowers nodding: divisions of the corol roundish, acuminate, crenate.

hybrida (P. y. J. ♃.) glabrous: leaves opposite, petioled, lanceolate, acute at both ends; petioles ciliate: flowers nodding: corol shorter than the calyx; divisions crenulate.

LYTHRUM, 60.

salicaria (milk-willowherb. Can. New-England. p. Ju. ♃.) pubescent: leaves opposite and ternate, sessile, lanceolate, cordate at the base: flowers terminal, whorled-spiked: capsules oblong: stamens always 12. About two feet high.

verticillatum (swamp-willowherb. O. p. Au. ♃.) pubescent: leaves opposite, or in threes, lanceolate, petioled: flowers axillary, corymbed, aggregated somewhat in whorls: fruit globose: stamens often 10. A small island above Whitney's gun factory (New-Haven) is entirely covered with this plant, and the American dodder.

M.

Magnolia, 67.

glauca (beaver tree. Cape Ann. C. P. w. J. ♄.) leaves oval, glaucous beneath: petals obovate, tapering to the base. Var. *latifolia*, has obtusish leaves. Var. *longifolia*, has leaves acute at both ends. Tonic. See Barton's Veg. Mat. Med.

acuminata (cucumber tree. P. b-y. J. ♄.) leaves oval, acuminate, pubescent beneath: petals obovate, obtusish.

tripetala (umbrella tree. P. w. J. ♄.) leaves large, oblong, wedge-obovate, acute, in the young state all over silky: petals 9, oval, acute, outer ones reflexed.

grandiflora (big laurel, magnolia. Southern states. w. M. ♄.) leaves evergreen, oval, thick, leathery: petals broad obovate, abruptly narrowed into a claw.

Malaxis, 89.

ophioglossoides (adder mouth. P. M. 4.) leaves solitary, ovate, clasping: scape 5-cornered: lip 2-cleft at the apex.

liliifolia (twayblade. O.w. y. p. J. 4.) leaves 2, lance-ovate or oval; scape 3-cornered: inner petals filiform, reflexed, two-coloured; lip concave, obovate, mucronate. This species is often mentioned as somewhat rare. But I have seen hundreds in flower at one time along the north side of Pine-rock, New-Haven.

Malva, 77.

americana (rough mallows. P. y. J. ☼.) leaves

ovate, acute, toothed, scabrous: flowers axillary solitary, terminal, head-spiked.

caroliniana (creeping mallows. Southern states. r. Ju. ☉.) leaves 5-lobed or palmate, gash-toothed: peduncles longer than the petioles: petals entire: fruit villose: stem prostrate.

rotundifolia (low mallows. O. r. w. J. 4.) leaves heart-obicular, obsoletely 5-lobed, peduncles bearing the fruit declined: stem prostrate.

sylvestris (mallows. E. r-b. J. ♄. and 4.) stem erect: leaves about 7-lobed, acutish: peduncles and petioles hairy.

crispa (curled mallows. E. Au. ☉.) stem erect: leaves angular, crisped: flowers axillary, glomerate.

moschata (musk mallows. E. 4.) stem erect: radical leaves reniform, gashed; cauline ones 5-parted, pinnate, many-cleft: leafets of the outer calyx linear.

Marchantia, 109.

polymorpha (brook-liverwort. O. g-y. Ju. 4.) leaves obtusely lobed: the calyx (or umbrella under which the flowers are placed) is about 10-cleft.

hemispherica (P.) calyx hemispheric, 5-cleft: stalk or stipe naked at the base.

cruciata, calyx 4 or 5-parted, segments tubular.

cornica, calyx conic, bossed: what appears to be staminate flowers are in sessile warts.

tenella, calyx hemispheric, bossed: the margin has a kind of lamellar rays.

Mariscus, 29.

echinatus (hedgehog clubrush. C. Ju. 4.) culm 3-sided, nearly naked, glabrous: spike ovate-globose: spikelets horizontal, 4-flowered: involucre 3 or 4-leaved: root globose.

MARRUBIUM, 69.

vulgare (motherwort. O. w. Ju. ♃.) leaves round-ovate, toothed, rugose-veined : calyx toothed, setaceous, uncinate.

MARTYNIA, 73.

proboscidea (unicorn plant. Western states. w. p. y. Ju. ☉.) stem branching, leaves alternate, cordate, entire, villose. Fruit somewhat gourd-like, with one long horn.

MASCHALOCARPUS, 107.

julaceum (creeping moss.) ascending : leaves ovate, acute, nearly as long as the peduncle : capsule erect, ovate ; lid conic.

MATRICARIA, 87.

chamomilla (wild chamomile. E. w. J. ☉.) leaves doubly-pinnate : scales of the calyx obtusish.

MEDEOLA, 52.

virginica (indian cucumber. O. y. g. M. ♃.) leaves whorled near the middle of the stem, and 3 together at the top, lance-oval : pedicels aggregate, terminal. Root white.

MEDICAGO, 80.

sativa (lucerne medick. E. Ju. ♃.) peduncles racemed : legume smooth, cochleate : stipules entire : leaves oblong, toothed.

lupulina (hop medick. Y. A. C. y. J. ☹.) spikes oval : legumes reniform, 1-seeded : stipules entire : leaves obovate : stem procumbent.

tribuloides (hedge-hog. E. ☹.) peduncles 2-flowered : legume cochleate, cylindric, flat both

sides, aculeate, conic 2-ways, reflexed : stipules toothed : leaves toothed, obovate.

scutellata (snail-shell, bee-hive, E. Ju. ☺.) peduncles about 2-flowered : legumes unarmed, cochleate in an orbicular form, with a convex base and flat top : stipules toothed : leaves oblong, toothed.

maculata (P. y. Ju. ☺.) peduncles about 2-flowered : legumes cochleate, compressed both sides, aculeate, subulate, arched : stipules toothed leafets obcordate, toothed, spotted.

Meesia, 108.

longiseta (net-tooth moss) having a very long awn.

Melampyrum, 71.

americanum (cow-wheat. O. y. Ju. ☺.) slender lower leaves linear entire ; floral ones lanceolate, toothed behind : flowers axillary, distinct.

latifolium (C.) leaves broad. I have no description of this species, nor a specimen.

Melanthium, 52.

virginicum (black flower. C. P. g-p. J. ♃.) panicle pyramid-form : petals oval, subhastate, flat, with 2 spots : flowers mostly perfect. Flowers at first greenish-white, afterwards turn to dark brown.

racemosum (bunch flower. P. w. J. ♃.) panicles racemed above, pistillate : petals roundish, having claws, undulate-plaited, hardly spotted, hirsute outside.

Melastoma, 56.

prasina (North America. Per.) leaves 3-nerved, entire, broad-lanceolate, glabrous : panicles terminal, spreading.

Melia, 56.

azedarach (bead tree. E. ♄.) leaves doubly-pinnate: leafets smooth, ovate, toothed.

triflora (Whitehills. Au.) villose: panicle coarctate: glumes 3-flowered, with a small accessary appendage: florets awned. A new species discovered by Dr. Bigelow.

Melica, 31.

speciosa (melic grass. P. J. ♄.) panicle 1-sided: branches of the panicle solitary, 3-flowered: stipules 2-cleft.

Melilotus, 81.

officinalis (melilot. A. P. w. J. ☉. or ♂.) stem erect: leaves obovate, serrate: spikes axillary panicled: legumes 2-seeded, rugose, acute. Grows wild about Albany.

Melissa, 69.

officinalis (balm. E. w. b. Ju. ♃.) flowers whorled half way around, subsessile: bracts oblong, pedicelled: leaves ovate, acute, serrate.

nepeta (calamint. P. r. b. S. ♃.) peduncles axillary, many-flowered, dichotomous-corymbed: leaves ovate, obtuse, sub-serrate, somewhat glabrous: stem subhirsute: teeth of the calyx about equal, glabrous.

Melothria, 97.

pendula (creeping cucumber. P. y. J. ☉.) leaves subreniform, lobe-angled; terminal lobe equalling the rest: berry cylindric, ovate.

Menispermum, 100.

canadense (moonseed, Y. N. H. A. C. P. w-y. Ju ♄.) stem climbing: leaves subcordate, round-angled, peltate with the petiole near the base. Though this plant is common in New England and New-York, it is rarely found in flower.

virginicum (P. w. J. ♄.) leaves lobed, cordate, pubescent beneath, subpeltate.

Mentha, 68.

viridis (spear mint. O. w. J. ♃.) spikes oblong, interrupted: leaves lanceolate, naked, serrate, sessile: stamens longer than the corol.

piperita (peppermint. E. p. Au. ♃.) spikes obtuse, interrupted below: leaves subovate, somewhat glabrous, petioled: stem glabrous at the base.

gracilis (slender mint. P. w. b. Ju. ♃.) flowers whorled: leaves lanceolate, subsessile: stem branching, erect: calyx at the base and pedicels, glabrous.

borealis (northern mint. O. w. Ju. ♃.) ascending, pubescent, leaves petioled, lance-oval, acute at both ends: flowers whorled: stamens exsert.

canadensis (Can.) flowers whorled: leaves lanceolate, serrate, petioled, pilose: stamens equalling the corol.

Menyanthes, 38.

trifoliata (buck-bean. C. P. r. J. ♃.) leaves ternate: corols densly bearded above. In stagnent waters.

Menyanthes, see Villarsia.

Menziesia, 54.

cærulea (mountain heath. Whitehills. r. Ju. ♄.)

leaves scattered, crowded, linear, obtuse, cartilagenous-toothed: peduncles terminal, aggregate, 1-flowered; flowers bellform; calyx acute. Decandrous. Very small.

globularis (P. p-y. M. ♄.) leaves lanceolate, glaucous beneath, pubescent on the outer nerve: calyx 4-cleft; flowers globose. About 4 feet high.

Merulius, 117.

cornucopioides (veined toadstool) dull cinnamon, lobed, curled: vein running down to the root: stem grooved.

infundibiliformis, grey mouse-colour, funnel form: veins silvery: stem compressed hollow.

cantharellus (W.) yellow, becoming hollow, with an irregular, curled margin: veins decurrent: stem solid.

Mesembryanthemum, 63.

crystallinum (ice plant. E. w. Au. ☉.) branching: leaves alternate, ovate, papillose: flowers sessile: calyx broad-ovate, acute, retuse. From Greece.

Mespilus, 62.

germanica (medlar. E. ♄.) leaves lance-ovate, downy beneath: flowers sessile, solitary.

pyracantha (evergreen thorn. New-Jersey.) leaves evergreen. I have no specific description of this plant.

Mikania, 84.

scandens (climbing thoroughwort. P. Y. H. C. w Au. 4.) stem glabrous, climbing: leaves cordate, repand-toothed, acuminate, lobed, divaricate, unequal; flowers corymbed.

melissaefolia (P. w. p. S. 4.) pubescent: stem erect: leaves ovate, crenate, sessile, pubescent beneath; corymbs terminal.

Milium, 30.

nigricans (african millet. E.) flowers panicled, crowded: valves of the calyx shining, becoming black: leaves ensiform, very long.

effusum (common millet. E.) flowers in whorled panicles, dispersed, awned.

ciliatum (millet grass. New-Jersey. C. Ju.) branches of the panicle solitary; alternate, pubescent, erect: leaves with hairy nerves and ciliate margins: roots granular. Dr. Torrey says this is the M. amphicarpon of Pursh.

Mimosa, 76.

sensitiva (sensitive plant. E.) prickly: leaves pinnate; the leafets in pairs, inmost ones minute.

Mimulus, 72.

ringens (monkey flower. O. b. Ju. 4.) erect, glabrous: leaves sessile, lanceolate, acuminate, serrate: peduncles axillary, opposite, longer than the flower: teeth of the calyx acuminate.

alatus (C. P. b. Ju. 4.) erect, glabrous: leaves petioled, ovate, acuminate, serrate: peduncles axillary, opposite, shorter than the flower: stem winged at the 4 corners.

Mirabilis, 41.

jalapa (four o'clock. E. r. y. Ju. 4.) flowers heaped, peduncled; leaves glabrous.

Mitchella, 34.

repens (partridge berry, checker berry. O. w. J.) stem creeping : leaves roundish.

Mitella, 58.

diphylla (currant-leaf. O. w. Ap. 4.) leaves cordate, sub-trilobate, dentate : scape 2-leaved.

prostrata (Can. w. M. 4.) leaves round-cordate : stem prostrate, leafy.

reniformis (Vermont. w. J. 4.) leaves reniform, repand, ciliate : scape naked.

cordifolia (P. w. 4.) leaves round-kidney-form, somewhat doubly-crenate : scape setaceous, leafless.

Mnium, 108.

ventricosum (pricked-tooth moss) branches ascending : leaves lance-ovate, serrate at the top : capsule inflated, pendulous : lid convex, bossed.

hornium, simple : leaves lance-oblong, tooth-serrate, peduncle curved : capsule ovate drooping : lid conic obtuse.

marginatum, simple : leaves lance-ovate, acute, serrate, thickened at the margin : capsules ovate, drooping : lid conic, pointed.

cuspidatum, simple : leaves ovate, awned, serrate, capsule ovate drooping : lid hemispheric.

punctatum, nearly simple : leaves obovate, obtuse ; entire, remote : capsule ovate, drooping : lid cuspidate.

roseum, simple, proliferous : leaves ovate, pointed, clustered, stellate, serrate at top : capsule oblong, drooping : lid convex.

heterostichum, erect : divided leaves pointing one-way, 2-rowed, oblong obtuse, serrate at top : capsule oblong, inclined : lid bossed.

Remark. Muhlenberg places our Bryum conoideum and palustre under this genus.

Mollugo, 33.

verticillata (carpet weed. O. w. Ju. ☉.) stem subdivided prostrate : leaves in whorls, wedge-form, acute : peduncles 1-flowered. Generally grows in gardens among purslain.

Momordica, 97.

balsamina (balsam apple. E. S. ☉.) pomaceous fruit angled, tubercled : leaves glabrous, spreading, palmate.

echinata (P. w. Au. ☉.) pomaceous, fruit 4-seeded, roundish : setose-echinate : leaves cordate, 5-lobe-angled, acuminate, entire.

Monarda, 27.

didyma (mountain mint. C. P. W ? r. J. ♃.) somewhat glabrous : heads large, proliferous : outer bracts coloured, large, oblong, acuminate subentire : calyx and corol long : leaves broad-ovate, subcordate, acuminate, serrate, rugose ; serratures mucronate : stem glabrous.

kalmiana (oswego tea. Oswego county. r. ♃.) thinly hirsute : heads large, simple : outer bracts coloured, lanceolate, slender : calyx and corol pubescent : corols very long : leaves oblong tapering, serrate, having thin scattered rough hairs all over : stem sharp-cornered ; stem and petioles ciliate hairy.

clinopodia (Can. P. y. p. Ju. ♃.) glabrous : heads small, simple, terminal : outer bracts broad-ovate, acute, entire, smoothish : calyx ciliate, short : corol pubescent, slender : leaves ovate-oblong acuminate, serrate, a little hairy : stem obtuse-angled, glabrous.

ciliata (P. p. Au. ♃.) hirsute: flowers small, whorled: bracts ovate, glabrous, veiny, ciliate equalling the calyx; leaves ovate-oblong, tapering, sub-sessile, serrate, subpilose: stem acute-angled; hirsute.

oblongata (H? P. W? r. Ju. ♃.) hirsute: head simple: outer bracts ovate, acute: calyx short, bearded in the throat, teeth spreading: stem obtuse-angled, hirsute above. M. allophylla.

fistulosa (P. Can. p. Ju. ♃.) hirsute with scattered hairs: heads simple, proliferous, leafy: outer bracts oblong, acute, glabrous: calyx long, bearded: corol hirsute, of middling length: leaves ovate, acuminate, serrate: petioles long, ciliate: stem glabrous, obtuse-angled.

rugosa (Can. w. Ju. ♃.) smoothish: heads simple, middling size: outer bracts oblong: calyx smoothish: leaves ovate, subcordate, acute, rugose, glabrous: nerves coloured and pilose beneath: stem acute-angled, hirsute.

punctata (C. P. y. J. ♃.) smoothish: flower middling size, whorled: bracts lanceolate, nerved, coloured, longer than the whorls: leaves lance-oblong, remotely serrate, glabrous: stem obtuse-angled, with whitish down.

pilosa (C. J.) pubescent: heads lateral, slender-leaved: outer bracts linear, ciliate: corol pubescent: leaves lance-ovate, obtuse, subentire. Torrey. A new species discovered by Mr. Le Conte.

Monila, 119.

caespitosa (bead fungus.) branched: spikes ternate.

Monotropa, 58.

hypopithys (yellow beech-drops. Can. P. y. J. ♃.) scape spike-flowered: scales and flowers glabrous outside; lateral flowers octandrous.

lanuginosa (bird's nest. O. y-w. Ju. ♃.) scape spike-flowered: bracts and flowers all over woolly.

uniflora (beech drops. O. w. J. ♃.) stem 1-flowered; flower nodding at first, at length erect: scales of the stem approximate. Whole plant ivory white at first. Dr. Bigelow's morisoniana is undoubtedly this species. The diagnosis given by authors would very naturally lead him into this error. But the morisoniana grows only in the southern states. Torrey.

procera (A. r-y Ju.) scape purple, very tall, many-flowered; flowers lateral and terminal, nodding; peduncles filiform longer than the flowers: lanceolate scales below, none above. About 2 feet high, with the flowers in a terminal raceme. Found at Greenbush, by Mr. Edwin James; named and described by Dr. John Torrey.

Morellus, 118.

impudicus (morrel. O. y.) obtusely-conic, margin crenulate, top perforated: stem with a volva at the base.

esculentus (eatable morel. O.) ovate, cellular, margin attached to the stem: plaits undulate, growing to each other.

Morus, 92.

alba (white mulberry. E. M. ♄.) leaves heartform with oblique base, ovate or lobed, unequally serrate, smoothish. From China and Persia.

nigra (black mulberry. E. Ju. ♄.) leaves cordate, ovate, or sub-5-lobed, unequally toothed, scabrous. From Persia.

rubra (P. M. ♄.) leaves cordate, ovate, acuminate, or 3-lobed, equally serrate, scabrous, soft hairs beneath: pistillate spikes cylindric.

Mucor, 119.

mucedo (common mold. O. b.) aggregated: head spherical, on a long stem; bursting when brought from a damp place into the sun's rays.

Muhlenbergia, 31.

diffusa (dropseed-grass. Y. C. P. J. ♃.) culm weak, branching; branches and leaves glabrous: panicle compact: calyx 1-valved.

erecta (woods dropseed-grass. W. C. P. Ju. ♃.) culm strong, simple; culm and leaves pubescent: panicle lax: calyx 2-valved; awn long.

Myagrum, 73.

perfoliatum (gold of pleasure. E. ☺.) silicle obcordate, suberose, spongy; lower part 1-celled, fertile, upper part 2-celled, barren: leaves clasping.

Myosotis, 37.

scorpioides (scorpion weed. C. P. M. ♃.) seeds smooth: calyx suboval, glabrous, about as long as the tube of the corol: stem subramose: leaves lanceolate.

virginiana (W. C. P. w-b. J. ☺.) pilose: seed prickly-bearded: leaves lance-ovate acuminate: racemes divaricate. Flowers small, leaves large.

arvensis (C. A. P. w-b. J. ☺.) seeds smooth: calyx oval, acuminate, very hirsute, longer than the tube of the corol: stem very branching: racemes conjugate: leaves lance-ovate. Flowers small.

lappula (W. C. A. Can. b. Ju. ☺.) hispid: seeds prickly, bearded: leaves linear-oblong: stem stiffly branched.

Myrica, 98.

gale (sweet gale. P. C. Y. H. Plainfield, Mass. M. ♄.) leaves wedge-lanceolate, obtuse, serrate at the apex: staminate aments imbricate; scales acuminate, ciliate: fruit in a scaly head. Very abundant at the margin of Crooked lake in Plainfield.

cerifera (bayberry. H. Y. P. g-p. M. ♄.) leaves wedge-lanceolate, acute, with distant serratures at the apex: staminate aments lax, scales acute: fruit small, globose, covered with a whitish wax, in a mealy state. This is the bayberry tallow, which is obtained by melting it off in hot water.

caroliniensis (New-England. Pursh. M. ♄.) leaves wedge-oblong, coarsely toothed: staminate aments lax; scales acute: berries globose, large. Three or four feet high.

pensylvanica (C. P. M. ♄.) leaves oblong acutish at both ends, entire or with a few distant serratures at the apex, margin revolute: staminate aments lax: scales acute: berry globose, large. Resembles the last.

Myriophyllum, 94.

verticillatum (water milfoil. C. P. Can. Ju. ♃.) leaves capillaceous, upper ones pectinate-pinnatifid: flowers all in axillary whorls: lower ones pistillate, upper ones staminate or perfect, octandrous. In stagnant waters.

spicatum (Can. New-Jersey. Ju. ♃.) leaves all pinnate, capillaceous: spikes interruptedly naked: flowers staminate, polyandrous.

Myrrhis, 46.

dulcis (sweet cicily. O. w. J. ♃.) leaves compound, hairy; leafets pinnatifid-lobed. There

is still a defect in the description of this plant; though attempts have been made to improve it. It has been removed to the genera Scandix and Chaerophyllum, without obviating the difficulty.

Myrtus, 62.

communis (myrtle. E. w. Ju. ♄.) flowers solitary: involucre 2-leaved: leaves ovate.

N.

Najas, 90.

canadensis (water-nymph. Can.) small, filiform, smooth: leaves narrow-linear.

Napaea, 77.

laevis (false mallows. P. w. Ju. ♃.) leaves heart-5-lobed, glabrous: lobes oblong, acuminate, toothed: peduncles many-flowered: capsules awnless, acuminate. 2 to 4 feet high.

scabra (P. w. Oc. ♃.) leaves 7-lobe-palmate, scabrous: lobes lanceolate, gash-toothed: corymbs bracted: flowers dioecious.

Narcissus, 49.

pseudo-narcissus (daffodil. E. M. ♃.) spathe 1-flowered: nectary bellform, erect, crisped, equalling the ovate petals.

tazetta (polyanthos. E. M. ♃.) spathe many-flowered: nectary bellform, plicate, truncate, thrice as short as the petals; petals alternately broader: leaves flat.

jonquilla (jonquil. E. M. ♃.) spathe many flowered: nectary bellform, short: leaves subulate.

poeticus (poet's narcissus. E. 2′.) spathe 1-flowered : nectary wheelform, very short, scarious (red) crenulate : leaves inflexed at the margin.

Narthecium, 51.

americanum (false asphodel. New Jersey. y. J. 4.) racemes sometimes interruptedly spiked, lax : one cauline bract clasping the pedicel, another chaff-bristleform below : filaments with short wool. N. ossifragum.

Neckera, 108.

pennata, (strait-haired moss.) decumbent, branched : leaves 2-rowed, lanceolate, crowded : capsule ovate, immersed in the sheath.

heteromalla, branched, diffuse : leaves ovate, pointed, concave, imbricate : capsules sessile, leaning one way : lid conic.

macropoda, decumbent, branched : leaves somewhat 2-rowed, lanceolate, rather concave : peduncles very long : capsules cylindric, erect : lid conic.

viticulosa, creeping : branches erect, nearly simple : leaves lance-ovate, acute : spread, a little undulate : capsule cylindric : lid pyramidal.

Nectris, see Floerkia.

Nelumbium, 67.

luteum (nelumbo. P. y. Ju. 4.) leaves peltate, orbicular, entire : corol polypetalous : anthers linear above.

Neottia, 89.

aestivalis (summer ladies' tresses. Y. P. W. C. w. J.) stem leafy : roots bulbs oblong, aggregate : leaves lance-linear : spikes spiral : flowers one-

sided : lip crenate, crisped. N. tortilis. Ophrys aestivalis. Grows along the banks of the Hoosack, northwest from Williams College.

cernua (nodding ladies' tresses. O. w. Au. 2.) leaves lanceolate, 3-nerved : stem sheathed : spike oblong, dense-flowered ; flowers recurve-nodding : lip oblong, entire, acute. The high primitive mountains east of Pittsfield, Mass. exhibit patches, white with these flowers, in Oct. and Nov.

pubescens (blood-vein ladies' tresses. O. y-w. Ju. 2.) radical leaves ovate, petioled, having coloured reticulate veins : scape sheathed ; scape and flowers pubescent : lip ovate, acuminate : petals ovate. The checkered radical leaves of this plant always attract attention early in the spring.

Nepeta, 68.

cataria (catmint, catnep. O. b-w. Ju. 2.) flowers in whorled spikes : leaves petioled, cordate, tooth-serrate.

Nerium, 43.

oleander (rose bay, oleander. E. Au. ♄.) leaves lanceolate, narrow, ternate, ribbed beneath ; divisions of the calyx squarrose : nectary flat, tricuspidate.

Nicandra, see Atropa.

Nicotiana, 38.

tabacum (virginian tobacco. E. w-r. Ju. ☉.) leaves lance-ovate, sessile, decurrent : flowers acute.

rustica (common tobacco. E. Au. ☉.) leaves petioled, ovate, entire : flowers obtuse.

paniculata (small-flowered tobacco. Au. ☉.) leaves

petioled, cordate, entire: flowers panicled, obtuse, clavate.

Nigella, 66.

damascena (fennel-flower. E. M. ☺.) flower surrounded with a leafy involucre.

sativa (E.) pistils 5: capsules muricate, rough leaves subpilose.

Nolana, 38.

prostrata (E.) stem prostrate: divisions of calyx triangular-saggittate.

Nuphar, 65.

lutea (water lily. C. P. y. J. ♃.) leaves cordate, entire, lobes near each other: calyx 5-leaved: stigma repand, with 14 to 20 radiated lines, and a deep central hole.

kalmiana (C. Can. y. Ju. ♃.) leaves cordate, lobes near each other, calyx 5-leaved: stigma gashed with 8 to 12 radiated lines. Flowers small.

advena (O. y. Ju. ♃.) leaves erect, cordate, entire: lobes spreading asunder: calyx 6-leaved: stigma with a slight central depression, and 13 radiating lines: pericarp furrowed. In stagnant waters.

Nymphaea, 64.

odorata (pond lily. O. w. Ju. ♃.) leaves round-cordate, entire, submarginate, lobes spreading asunder, acuminate, obtuse: petals equalling the 4-leaved calyx: stigma with 16 to 20 radiating eretish lines. Var. *rosea*, has the flower purplish beneath, and the hind lobes of the leaves acutish.

Nyssa, 99.

villosa (pepperidge, tupelo. O. y-g. M. ♄.) leaves oblong, entire, acute at both ends; the petioles, midribs and margins villose: pistillate petioles sub-3-flowered: nut short-obovate, obtuse, striate. N. multiflora.

biflora (sour-gum. C. M. ♄.) leaves ovate-oblong, entire, acute at both ends, glabrous: pistillate peduncles 2-flowered: drupe short-obovate; nut obtusely striate.

O.

Obolaria, 70.

virginica (penny-wort. P. r. Ap. ♃.) stem simple: leaves oblong, truncate, fleshy, purple beneath: flowers axillary, solitary, sessile.

Ocymum, 70.

basilicum (basil. E. ☺.) leaves ovate, glabrous: calyx ciliate.

Oenothera, 54.

biennis (scabish, tree-primrose. O. y. J. ♂.) stem villose, scabrous: leaves lance-ovate, flat, toothed: flowers terminal, subspiked, sessile: stamens shorter than the corol. Phosphorescent. Pursh.

parviflora (C. y. Ju. ♂.) stem smooth subvillose: leaves lance-ovate, flat: stamens longer than the corol.

longiflora (P. y. ☺. or ♂.) leaves denticulate: stem simple, pilose: petals distant, 2-lobed: tube of the flower very long: capsule hirsute.

grandiflora (P. y. Ju. ♂.) stem glabrous, branching: leaves lance-ovate, glabrous; stamens declined. Flowers very large.

fruticosa (sundrops. C. Y. P. A. y. Ju. 4.) smoothish : leaves lanceolate, subdentate, acute : capsules pedicelled, oblong-clavate, angled.

muricata (P. y. Ju. ♂.) stem purple, muricate : leaves lanceolate, flat : stamens of the length of the corol.

pusilla (P. Can. y. Ju. 4.) subpubescent : stem small, subsimple : leaves lance-oblong, obtusish, entire : flowers axillary at the top : capsules clavate turbinate, about equally 8-sided.

chrscsantha (dwarf scabish. O. y. J. 4.) stem slender, pubescent : leaves lanceolate, obtusish, flat, entire : tube of the calyx but half as long as the divisions : capsule clavate, acute-angled, mostly sessile. "Mr. Rafinesque has convinced me, that the plant, which Dr. Bigelow calls the O. pumila, is this species." Torrey.

Oldenlandia, 35.

glomerata (round-head. New-Jersey. g-w. M. ☺.) procumbent : leaves lance-ovate : flowers axillary and terminal, heaped in a head, pedicelled : germs hispid.

Onoclea, 102.

sensibilis (sensitive fern. W. A. C. Ju. 4.) barren frond pinnate, fertile one doubly-pinnate : stem glabrous. The leafets slowly approach each other, on squeezing the stem in the hand.

struthiopteris (O. Ju. 4.) fronds sinuate, doubly-pinnatifid, divisions roundish.

obtusiloba, barren frond pinnate ; fertile one doubly-pinnate ; stem scaly.

Onopordum, 83.

acanthium (cotton thistle. H. p. Ju. ♂.) scales of the calyx spreading every way, acuminate :

leaves ovate-oblong, sinuate, toothed-spinose, woolly. Dr. Bigelow says, this exotic is now naturalized about Boston.

Onosmodium, 37.

hispidum (false gromwell. Y. C. y-w. J. 4.) very hispid: leaves lance-oval, acute, papillose-punctate: divisions of the corol subulate. Very abundant on the barren plains between Ball's spring and Love's tavern, New-Haven.

Opegrapha, 112.

macularis (lettered lichen) crust almost wanting: clefts simple, roundish, convex, clustered in a roundish black spot.

Ophioglossum, 105.

vulgatum, (addertongue fern. C. P. M. 4.) frond ovate, simple: spikes about an inch long.
bulbosum (C. M. 4.) root bulbous: frond heart-ovate, obtuse.

Orchis, 88.

1. *Roots oval.*

ciliaris (orchis. C. Y. P. A. y. Ju. 4.) lip lance-oblong, pinnate-ciliate, twice as long as the petals: spur longer than the germ.
blephariglottis (New-Jersey. w. J. 4.) lip lanceolate, ciliate, of the length of the upper petal; spur longer than the germ. Resembles the last.
psycodes (P. Can. y. J. 4.) lip 3-parted, divisions capillary-many-cleft: petals obtuse: spur filiform-clavate, ascending, of the length of the germ.

cristata (C. P. y. J. 4.) lip oblong, pinnate-ciliate: petals round, 2 lateral ones toothed: spur shorter than the germ.

lacera (C. Y. H. A. g-w. Ju. 4.) lip 3-parted; divisions subdigitate-filiform: spur about equalling the germ: flowers alternate. Perhaps the root is not oval.

discolor (C. Ju. 4.) lip 3-parted, longer than the petals; lateral divisions short acute; middle one extended, spatulate: spur filiform, about twice as long as the germ: leaf one, radical, heart-ovate.

2. *Roots palmate.*

flava (P. y. Ju. 4.) lip 3-cleft, entire, middle division larger: spur filiform, of the length of the germ: spike elongated, compact: bracts longer than the flower.

tridentata (C. Y. P. w. J. 4.) lip lanceolate, 3-toothed at the apex: petals obtuse: spur filiform, clavate, ascending, longer than the germ.

3. *Roots fascicled.*

fuscescens (Catskill Mt. P. p-y. Ju. 4.) lip ovate, toothed at the base: petals spreading: spur subulate, of the length of the germ: bracts longer than the flowers.

spectabilis (O. r. M. 4.) lip obovate, undivided, crenate, retuse: petals strait, lateral ones longest: spur clavate, shorter than the germ: bracts longer than the flowers: stem leafless.

incisa (C. P. w-p. Ju. 4.) lip 3-parted, divisions wedge-form, gash-toothed, middle one emarginate: lateral petals obtuse, subdentate; spur subulate, ascending, of the length of the germ. Very tall.

rotundifolia (P w. J. 4.) lip 3-cleft, intermediate divisions 2-cleft: spur shorter than the germ, leaves round-oval.

fimbriata (W. C. H. Y. p. Ju. 4.) lip 3-parted: divisions wedge-form, ciliate-fringed: lateral petals ovate, toothed: spur filiform, clavate, longer than the germ.

orbiculata (W. C. A. P. g-w. J. 4.) lip linear, entire, obtusish: petals 3, upper ones converging, 2 lateral ones spreading, at the base oblique: spur longer than the germ: scape with 2 flat, fleshy, shining, orbicular leaves at the base. Very abundant near Williams College.

fissa (P. p. Ju. 4.) lip 3-parted; divisions wedge-form, toothed, intermediate one 2-lobed: spur filiform, clavate, ascending, longer than the germ. Tall.

dilatata (giant orchis. W. w. or g. J. 4.) spur shorter than the germ: lip entire, linear, with the base dilated, of the length of the spur: bracts of the length of the flower: stem leafy. This species grows in great abundance along the north side of the Hoosack, near Williams College. In the mountains along Whiteoak creek, the flowers are green; in the open meadows, white. It may be found in flower from 1 to 4 feet high.

Origanum, 70.

vulgare (wild marjoram. Y. A. P. r. Ju. 4.) spikes round-panicled, heaped: bracts ovate, longer than the calyx.

majorana (sweet marjoram. E. ½.) spikes roundish, ternate, compact, peduncled: leaves petioled, oval, obtuse, smoothish. From Palestine.

Ornithogalum, 51.

umbellatum (star-of-bethlehem. E. M. 4.) flowers corymbed, peduncles higher: filaments dilated at the base.

Orobanche, 71.

virginiana (false beech-drops, cancer-root. O. y-p. Ju. ♃.) stem very branching: flowers alternate, distant: corol 4-toothed. Flowers small. The whole plant is yellowish white, and of a naked appearance.

uniflora (squaw-root. O. p-w. J. ♃.) scape naked 1-flowered: calyx without bracts: corol recurved. About 3 inches high, of a yellowish white colour. This plant does not agree with its generic characters. The calyx is 5-cleft, no lobed lateral leafets. The description ought to be improved.

americana (P. p-y. Ju. ♃.) stem simple, covered with imbricate lance-oval scales: spike terminal, glabrous: corol recurved: stamens exsert. About a span high: brownish yellow.

Orontium, 51.

aquaticum (floating-arum. Y. P. C. y. M. ♃.) leaves lance-ovate: spike cylindric, on a scape. Very plentiful in the west meadows, 2 miles from New-Haven.

Orthotrichum, 107.

anomalum (curve-hair moss) branched: leaves lanceolate, carinate, rather obtuse, revolute at the edges: calyptre hairy, toothed at the base. Peristome sub-simple.

striatum, branched: leaves lanceolate, acute, carinate, spread: calyptre hairy.

crispum, branched: leaves lance-linear, recurved and waved when dry: peduncles longer than the leaves, thickened at the top: calyptre hairy.

Oryza, 51.

sativa (rice. E. ☺.) culm jointed : leaves clasping : panicle terminal.

Oryzopsis, 30.

asperifolia (mountain rice. Y. P. N. Au. ♃.) culm nakedish : leaves rough.

Osmunda, 104.

cinnamomea (flowering fern. O. y. J. ♃.) frond doubly pinnatifid ; fertile ones distinct and panicle-racemed.

interrupta (O. g-y. J. ♃.) barren leafets on the frond with the fertile ones, above and below and sometimes among them.

spectabilis (P. r-y. J. ♃.) frond doubly pinnate ; leafets sharp serrate.

regalis (O. r-y. J. ♃.) frond bipinate, terminating in several racemes very branching and without hairs. Are these two last species the same ?

Ostrya, 95.

virginica (iron-wood, hop hornbeam. O. g. M. ♄.) leaves ovate-oblong, subcordate, acuminate, unequally serrate : strobiles oblong-ovate, erect : buds acute.

Oxalis, 59.

acetosella (woodsorrel. C. W. P. w. r. M. ♃.) stemless : scape 1-flowered, longer than the leaves : leaves ternate, broad-obcordate with rounded hind lobes.

violacea (violet woodsorrel. Y. A. C. p. J. ♃.) stem-

less: scape umbelliferous; pedicels subpubescent: flowers nodding: leaves ternate, obcordate, glabrous: divisions of the calyx callous at the apex: styles shorter than the outer stamens.

dillenii (yellow woodsorrel. O ? y. J. ☉.) hirsute: stem leafy, erect, rough-haired: peduncles umbelliferous, longer than the obcordate, ternate leaves: petals emarginate.

stricta (yellow woodsorrel. O ? y. J. ☉.) all over hirsute: stem erect, branching: peduncles umbelliferous, shorter than the petioles: leaves ternate, obcordate: petals obovate: styles of the length of the inner stamens. Will not the common yellow woodsorrel agree with both of these descriptions?

corniculata (C. P. y. M. ☉.) all over pubescent: stem branching, diffused, or procumbent: peduncles umbellate, shorter than the petioles: leaves ternate, obcordate: petals wedge-form, erose at the apex; styles of the length of the inner stamens.

Oxycoccus, 53.

palustris (low cranberry. P. Catskill Mt. Can. r. J. ♄.) creeping: leaves oval, entire, margin revolute, subacute, glabrous, becoming white beneath: pedicels elongated: divisions of the corol oval.

macrocarpus (cranberry. O. r. J. ♄.) creeping stem ascending; leaves oblong, entire, flattish, obtuse, glabrous, becoming white beneath: pedicels elongated: divisions of the corol lanceolate.

erythrocarpus (P. J. ♄.) erect: leaves oval, acuminate, serrulate, ciliate: pedicels axillary: corols long, at length revolute.

P.

Panax, 44.

trifolia (dwarf ground-nut. W. C. P. A. w. 4.) leaves in threes, ternate or quinate; leafets serrate, lance-oblong, subsessile; root tuberous, roundish. Styles generally three. Root round-tuberous, and very deep in the earth in proportion to the size of the plant.

quinquefolia (ginseng. W. C. P. A. N. w. M. 4.) root fusiform: leaves ternate, quinate: leafets oval, acuminate, petioled, serrate. Larger than the last.

Paeonia, 65.

officinalis (Peony. E. r. J. 4.) leaves decompound; leafets lobed, lobes broad-lanceolate; capsules downy. Improperly called pina.

Panicum, 80.

crus-galli (barn grass. O. Ju. ☺.) spikes alternate and in pairs, thick, squarrose: glumes hispid, awned: rachis angled; sheath glabrous.

glaucum (foxtail panic. O. y. J. ☺.) spike terete: involucels 2-flowered, fasicle-setose: seed transversely rugose. Var. *laevigatum*, has glabrous leaves and sheaths.

italicum (C. P. Ju. ☺.) spike terminal, cylindric, nodding, compound, interrupted near the base; rachis and peduncles pilose: bracts a little longer than the calyx, hispid upwards.

viride (C. P. Ju. ☺.) spike terete, subcompound, nodding, undivided: involucels (bracts) 10 to 15, setose, soft: seeds nerved. The rachis is hirsute below the spike, furrowed and many-cornered.

capillare (O. S. ☉.) panicle capillary, very branching, lax: flowers minute, all pedicelled, solitary, oblong-ovate, acuminate, awnless: leaves and sheaths very hirsute. The rachis is angled. Branches of the panicle are opposite and alternate, jointed at the base; branchlets ternate, nodding.

virgatum (O. Ju. ♃.) panicle very branching, wand-like: glumes ovate, acuminate, awnless, 2-flowered: leaves very long, flat. The rachis, or main peduncle is coloured. Lower branches of the panicle are whorled, the others solitary.

latifolium (O. J. ♃.) panicle moderately spreading: glumes ovate, acutish, subpubescent: leaves lance-ovate, clasping the stem with the base above the sheath, glabrous, broad; sheath pilose. The leaves vary in breadth; but the broadest are lance-cordate, and enclose most of the few-flowered panicle with the sheath when young. Willdenow calls this the Var. *clandestinum*. Muhl. makes it a new species.

nitidum (O. Ju. ♃.) panicle capillaceous, branching: glumes striate, pubescent: seed shining: leaves somewhat distant, lance-linear, bearded at the neck of the sheaths: stem glabrous.

scoparium (C.P.J. ♃.) panicle erect, compound, setaceous branched; glumes obovate, pubescent: leaves lanceolate villose. The sheaths are soft, and when young, glutinous. The lateral panicles are partly concealed.

hispidum (C.) sheath hispid, striate: spike compound, nodding; spikelets alternate, oblong, awned: rachis pilose, scabrous: calyx 3-valved; one very small and mucronate, the others nerved, hispid, awned.

geniculatum (C. P. S.) culm glabrous, dichotomous, geniculate at the base; panicle diffuse, very branching, dichotomous; branches jointed at the base, scabrous, solitary: pedicels thickened or clavate under the calyx, scabrous:

one valve short, obtuse, sub-3-lobed; the others acuminate, glabrous.

ramulosum (C. P. Ju. ☉.) panicles very small, lateral and terminal: glumes ovate, pubescent: leaves narrow, shortish, bearded at the throat. P. nodiflorum.

verrucosum (C.) culm with enlarged joints: terminal panicle spreading, lateral ones from the sheaths; branches alternate, solitary, divided, zigzag, glabrous: calyx 3-valved; one small acute, two others warty, 3-nerved.

walteri (C. Can. Ju. ☉.) spikes alternate, erect, solitary, simple: glumes ovate, muricate-hispid, awned; one awn very long: rachis 3-cornered: sheaths very hispid; leaves glabrous. Grows near salt-water.

agrostoides (C. P. Ju. ♃.) panicles terminal and lateral, branching; branches distant, in threes, pairs and solitary, erect when young at length horizontal and reflexed, jointed at the base, scabrous; branchlets scabrous, divided, close-pressed, pedicels short: leaves keeled, glabrous.

nervosum (C.) panicle terminal; branches numerous, spreading, glabrous somewhat zigzag: calyx unequal, the small one ovate, acute, the others acute nerved: leaves scabrous at the margins, ciliate at the base: sheaths long, striate, pubescent at the margin.

pubescens (C. P. J. ♃.) erect, very branching, pubescent: panicles small, few-flowered, lax, sessile: glumes globe-ovate, subpedicelled, pubescent. The branches of the panicle horizontal, zigzag.

macrocarpon (C.) culm erect; culm and sheaths pubescent; joints naked: leaves broad-lanceolate, nerved and glabrous both sides, ciliate: panicle subcompound, ramose, glaucous, largish, turgid, ovate; branches pubescent, striate. Le Conte.

umbrosum (C.) slender, erect, small, glabrous: culm purple, joints naked: leaves remotish, spreading, lanceolate; sheaths ciliate: panicle smallish, simple: glumes ovate, glabrous, striate. Le Conte. A new species.

angustifolium (C.) culm glabrous, erect, joints naked: leaves glabrous, long-linear; sheaths bearded at the neck: panicle few-flowered, long-pedicelled, largish, ovate, glabrous, striate. Le Conte. A new species.

barbatum (C. J.) erect, slender, glabrous; joints bearded: leaves lance-linear, distant, spreading, short; radical ones lanceolate, with ciliate sheaths: panicle sub-compound, racemose, glaucous, pubescent, striate. Le Conte. A new species.

Remark. The preceding 21 species have been collected in the vicinity of New-York, and analyzed by Dr. Torrey. I am indebted to him also, for the descriptions of the species of John Le Conte, Esq.

verticillatum (P. New-Jersey. Ju. ☉.) spikes whorled; racemes in fours: involucres 1-flowered, 2-bristled; culms diffuse: leaves with scabrous margins and keeled glabrous sheaths.

discolor (P. J. ♃.) panicle terminal, subsimple; branches horizontal, in pairs and solitary, zigzag, glabrous; florets all pedicelled: calyx 3-valved, 1-flowered; one valve minute and coloured: radical leaves abbreviated, those of the culm lanceolate, hairy at the base, margin crisped.

dichotomum (P. Ju. ♃.) panicles perfectly simple, few-flowered, glumes obovate: leaves lance-linear, divaricate, glabrous; bearded at the base and neck of the sheath: stem dichotomous. The lower joints are hairy, the upper ones glabrous. Radical leaves are lance-cordate, and abbreviated; those of the culm lance-linear, nerved, glabrous.

depauperatum (P. J.) panicle terminal, erect, few-flowered, (depauperate) branches in pairs; one abbreviated 1-flowered, the other 2-flowered and twisted: leaves lance-linear, the lower ones abbreviated, the upper ones elongated.

anceps (P. Ju. ♃.) erect: branches of the panicle simple, interruptedly racemed: sheaths two-edged, rough-haired below: the perfect flowers have 2-valved corols, the staminate flowers have 1-valved corols.

Papaver, 64.

rheas (wild poppy. Y. C. A. N. r. J. ☺.) capsules glabrous, subglobose: stem many-flowered, pilose, with the hairs spreading: leaves gash-pinnatifid. This is usually considered as an exotic; if it was introduced it is certainly most effectually naturalized in many places.

nudicaulis (Can. y. ♁.) capsules hispid: scape 1-flowered, naked, hispid: leaves subpinnate; leafets lanceolate, lower ones somewhat gashed.

somniferum (opium poppy. E. J. ☉.) calyx and capsule glabrous: leaves clasping, gashed, glaucous.

Parietaria, 92.

pensylvanica (pellitory. P. J. ☺.) leaves lance-oblong, veiny, with opake punctures: involucre 3-leaved, longer than the flower.

Parmelia, 115.

1. *Frond crustaceous; uniform.*

atra (shield lichen) rugged-granular, unequal, whitish-grey: shields black, at length convex, with a white border becoming zigzag and crenulate.

sophodes, nearly orbicular, granular, dull grey-green : shields crowded, flat becoming a little convex, black, with a margin somewhat tumid entire.

subfusca, very thin, contiguous, smooth, greyish white : shields sessile, scattered, rather convex, rusty-brown ; margin greyish-white tumid, entire.

dispersa, scattered : unequal, lead-grey : shields scattered, minute, flattish, brown and blackish ; grey with a raised, whitish, crenulate margin.

effusa, effuse, thin, mealy, pale-brown : shields pale-brown, with a very thin greenish-yellow border, becoming convex, the margin vanishing.

varia, granular, unequal, pale greenish-yellow : shields crowded, flattish, brownish and variegated, with a slightly inflexed irregular brownish margin.

2. *Frond foliaceous, somewhat membranous, depressed, stellate, more or less imbricate, fibrous beneath.*

aquila, cartilage-membraned, somewhat stellate, tawny-brown, paler with dark fibres beneath : segments imbricate, very narrow, many-cleft, recurved edges, deflected and broader in the circumference : shields dark brown with a paler crenulate margin.

saxatilis, membranous, glaucous-grey, somewhat stellate, roughish, net-pitted, black fibrous beneath : segments sinuate-lobed, imbricate, flat, somewhat truncate : shields bay, with a thin inflected pale crenulate margin.

conspersa (W.) membranous, stellate, glaucous-green glabrous, dotted with black ; black-brown and fibrous beneath : segments somewhat imbricate, flat, sinuate-lobed, cut-rounded-crenate ;

central shields bay, with an inflected margin nearly entire.

stellaris, membranous, stellate, becoming plaitted-wrinkled, naked, grey, whitish with grey fibres beneath : segments somewhat linear, convex, many-cleft : shields flat, bluish-black, at length concave and deep black, with an inflected grey margin.

aipolia, membranous, stellate, glaucous-grey, nearly naked, black-fibrous beneath : segments flattish, wavy, broader in the circumference, cut-lobed, crenate : shields flat, bluish, with a swelled inflected white entire margin.

anthelina, membranous, somewhat stellate, whitish, black downy beneath : segments flat, close-pressed, naked, nearly linear, many-cleft, obtuse, crenate : shields crowded, glaucous livid-brown becoming blackish, with a thin white entire margin.

pulverulenta, membranous, stellate, green-brown with a grey frost, black-downy beneath, segments somewhat imbricate, close-pressed, flat, many-cleft, rather linear, cut-crenate, a little retuse at top : shields flat, bluish, with a tumid involute entire margin.

olivacea, membranous, stellate, olive brown, shining, brownish and a little fibrous beneath : segments flat, dilated at top, rounded-lobed wrinkled and dotted : shields olive-brown, with an inflected crenulate margin.

liliacea, somewhat membranous, stellate, whitish-glaucous, a little frosted, blackish-brown with black fibres beneath : segments imbricate, rounded-lobed, sinuate-crenate, plaited, zig-zag : shields brown, with an inflected nearly entire margin.

scortea, leather-membranous, stellate, grey-white shining, smooth, finely dotted with black, black-bristly beneath : segments somewhat imbricate, rounded-lobed, sinuate-crenate, zig-zag.

caperata, leather-membranous, stellate, rugged-plaited, pale greenish-yellow, black-bristly beneath : segments sinuate-lobed, rounded, slightly crenate : shields rather central, concave, chesnut, with an inflected crenulate mealy margin.

3. *Frond leafy, somewhat leathery, with vague lax expanded lobes, villose beneath.*

perlata, somewhat leathery, expanded, glaucous-green, smooth, black-brown and a little villous beneath ; lobes rounded, a little curled : shields cup-form, dull red, with an entire margin.

perforata, somewhat membranous, expanded, glaucous, black-villose beneath, cut-lobed and fringed at the margin : shields funnel-form, at length perforated, rust-colour, with an entire margin.

herbacea, somewhat membranous, expanded, smooth, bright-green, pale with brown down beneath ; lobes cut crenate ; shields flattish, red-fulvous, with an inflected nearly entire margin.

4. *Frond foliaceous, gelatinous, variously formed.*

pulchra, somewhat fleshy, thickish, greenish-blue, lobes somewhat sinuate-rounded, unequal, entire, flexuous : shields scattered, pale rust-colour, with a tumid crenulate margin becoming convex and the colour of the frond.

tremelloides, membranous, thin, lead-colour : lobes cut-sinuate, the segments rounded, complicate, wavy, entire : shields lateral, slightly pedicelled, scattered, flat, red with pale margin.

lacera, somewhat pellucid, membranous, glaucous-green : lobes rather erect, crowded, torn-ciliate : shields scattered, concave, red with an entire pale margin.

nigrescens, membranous, of a single leaf, depress-

ed, rugged and blistered, dark-green, with a rounded lobed margin: shields central, crowded, becoming convex, reddish-brown with an entire border.

furva, membranous, rugged-plaited, granular both sides, greenish-black: lobes deformed, cut, rounded, wavy-curled, rather folded: shields scattered, flat, black-brown.

tenax, imbricate, nearly orbicular, glaucus-green; lobes flat-incumbent, roundish, unequally crenate or palmate-lobed: shields scattered, a little immersed, concave, with a nearly entire margin.

fasciculiaris, nearly orbicular, clustered, black-green, with central erect anastomatising plaits; lobes of the circumference cut-crenate: shields marginal, top-pedicelled, clustered, dull rust-colour.

palmata, imbricate, puffed, pale greenish-brown: segments somewhat membranous, linear, many cleft, somewhat palmate, zigzag, revolute and entire at the margin: shields scattered, reddish-fulvous.

submarginalis, lax, prostrate, sinuate, curled, with spherical nearly margial dark green granulation.

5. *Frond leafy, membranous, depressed: segments linear, somewhat imbricate, vaulted, or inflected, at their tips.*

physodes, glabrous, whitish, black-brown beneath, naked both sides: segments expanded, in many sinuate divisions, rather convex, a little inflated at the tip: shields red, with a thin inflected entire margin.

colpodes, pale-grey, black spongy beneath: segments divaricate, somewhat imbricate, in many sinuate clefts: shields cup-form, dull brown, becoming dilated, with an inflected crenulate margin.

enteromorpha, glabrous, white, black beneath; segments somewhat imbricate, lobed, obtuse, inflected: shields bay, entire.

6. *Frond leafy, membrane-cartilaginous, tufted: segments rather erect, linear, tapering; longitudinally channelled beneath.*

ciliaris, greenish, glaucous-grey, naked and whitish beneath; segments branched, linear, fibrillous at their tips: shields terminal, black-brown.

leucomela, naked, glabrous, white both sides, mealy beneath: segments linear, branched, fringed with black on the margin: shields pedicelled, nearly terminal, flat, bluish-black with a white radiate margin.

7. *Frond somewhat leafy, cartilaginous or leathery, segments erect or hanging, flat or cylindric-compressed, pitted, taperings, branched, naked, glabrous.*

fraxina, somewhat tufted, grey-white, glabrous both sides, rugged, pitted: segments flat, erect, linear-lanceolate, jagged: shields marginal and lateral, flat, pale.

fastigiata, leathery, tufted, glaucous-grey, glabrous, linear-pitted, slightly divided; segments cylindric-compressed, thickened upwards, flat-topped: shields nearly terminal, sessile, glaucous-grey.

polymorpha, tufted, yellowish, glabrous, torn-branched, flat, compressed or roundish; longitudinal pits and oval warts scattered and terminal: shields flat, terminal, yellowish.

chrysophthalma, tufted, orange-yellow, glabrous, jagged-divided and ciliate: segments erect, flat, nearly linear: shields terminal, orange, radiate.

8. *Frond filamentous, somewhat cartilaginous, branched: filaments nearly cylindric, hanging or diffuse.*

usneoides, cartilaginous, glabrous, compressed, pale; filaments hanging, somewhat fibrous, tapering; shields marginal, slightly pedicelled, flat, pale, with a thin entire margin.

jubata, cartilaginous, smooth, rather polished, cylindric, grey and black; filaments much branched, forked, filiform, the lower axils compressed: shields sessile, becoming convex, grey and black with an entire margin.

chalybeiformis, filaments decumbent, shorter, vaguely-branched, rigid, zigzag, interwoven, twisted, pitchy-black.

Panassia, 47.

palustris (false-plantain, parnassus-grass. C. W. A. P. w-p. Ju. ♃.) radical leaves cordate: nectaries many-bristled. The bristles or divisions of the nectary are terminated by little heads, and have somewhat the appearance of stamens.

caroliniana (C. P. w-p. Ju. ♃.) radical leaves suborbiculate: nectaries 3-bristled.

Paspalum, 80.

setaceum (paspalon grass. P. J. ☉.) spike single, slender: glumes round-obovate, glabrous: leaves villose: culm setaceous, erect.

ciliatum (P. Ju. ♃.) spikes alternate, somewhat in pairs: glumes somewhat in three rows, paired, round-obovate, obtuse, glabrous: leaves lance-linear, serrulate-ciliate: culm decumbent.

laeve (P. J. ♃.) spikes many, alternate: glumes in two rows, round-ovate, glabrous, smooth:

leaves glabrous; stipules ciliate; sheaths compressed: stem suberect.

stoloniferum (New-Jersey. Ju. ♃.) spikelets long-racemed somewhat whorled, spreading: glumes alternate, ovate, serrulate-ciliate, rugose transversely: leaves short, subcordate at the base: stem prostrate at its base.

Passiflora, 76.

lutea (yellow passion-flower. P. y. S. ♃.) leaves cordate, 3-lobed, obtuse, glabrous; petioles glandless: peduncles axillary, in pairs: petals twice as narrow as the calyx.

coerulea (blue passion-flower. E. b. Ju. ♄.) leaves palmate, 5-parted, entire: petioles glandular: involucre 3-leaved, entire: threads of the crown shorter than the corol.

alata (winged passion-flower. E. Oct. ♄.) leaves oblong-ovate, subcordate, entire, veiny; petioles with 4-glands: stipules lance-falcate, subserrate: involucre 3-leaved: stem 4-cornered, membranaceous.

Pastinaca, 46.

sativa (parsnip. E. Au. ☿.) leaves simply pinnate: leafets glabrous. Var. *arvensis*, leafets subpubescent. This variety is often found in situations, which almost prove it to be indigenous.

Pedicularis, 72.

canadensis (lousewort. O. y-p. M. ♃.) stem simple: leaves pinnatifid, gash-toothed: heads leafy at the base, hirsute: corol with a setaceous-2-toothed upper lip: calyx obliquely truncate. From 4 to 8 inches high; generally several stems growing from one root.

gladiata (high heal-all. Y. A. C. N. y-p. J. 4.) stem simple: leaves lanceolate, pinnatifid, toothed: spikes leafy, with alternate florets, hirsute; capsules lengthened into an exsert, sword-mucronate form. Often 2 feet high.

pallida (C. Y. y. Ju. 4.) stem branching, tall: leaves subopposite, lanceolate, crenate, toothed: spikes leafless, glabrous: upper lip of the corol obtuse: calyx 2-cleft, roundish. From 2 to 3 feet high. If I do not misapply these characters, this species grows along the west side of a meadow, one mile northeast from Love's tavern, New-Haven.

resupinata (Can. p. Ju. 4.) stem simple, glabrous: leaves lanceolate, toothed, crenate: calyx bifid truncate: upper lip of the corol acute.

sceptrum (P. y. S. 4.) stem simple: leaves pinnatifid; repand-crenulate: calyx 5-cleft, crested: corol closed.

PELARGONIUM, 76.

1. *Nearly stemless; root tuberous.*

triste (mourning geranium. E.) umbel simple: leaves rough-haired, pinnate: leafets bi-pinnatifid, divisions oblong acute. Flowers dark green.

dauciifolium (carrot geranium. E. 4.) scape very simple: leaves thrice-pinnate, hirsute: leafets lance-linear.

2. *Leaves simple, not angled.*

odoratissimum (sweet-scented geranium. E. ♄.) peduncles sub-5-flowered: leaves round cordate, very soft.

3. *Leaves simple, more or less angled or lobed.*

zonale (horse-shoe geranium. E. ♄.) umbels many-flowered: leaves heart-orbicular, obsoletely lobed, toothed, with a coloured zone or band around near the margin.

inquinans (scarlet geranium. E. ♄.) umbels many flowered: leaves round-reniform, hardly divided, crenate, viscid-downy.

acerifolium (lemon, or maple-leaf, geranium. E. ♄.) umbels about 5-flowered: leaves 5-lobe-palmate, serrate; below wedgeform, undivided.

capitatum (rose-scented geranium. E. ♄.) flowers capitate: leaves cordate, lobed, waved, soft: stem diffuse.

quercifolium, (oak-leaf geranium. E. ♄.) umbels sub-manyflowered: leaves cordate, pinnatifid, crenate: sinuses rounded: filaments ascending at the apex.

graveolens (sweet rose-geranium. E. ♄.) umbels many-flowered, subcapitate: leaves palmate-7-lobed; divisions oblong, obtuse, margins revolute.

Peltidea, 115.

vernosa, (target lichen) grey, white underneath with grey-brown downy hairs: lobes roundish divergent: targets anterior, marginal, horizontal, round, brown.

canina, expanded, greyish: whiter with brownish veins and fibres underneath: lobes oblong, large, broader outwards; fertile ones scattered, marginal narrow: targets perpendicular, revolute, roundish, anterior, tawny-reddish.

scutata, expanded, grey, naked and veinless beneath: lobes rounded, gash-sinuate, curled at the margin; targets marginal, orbicular, ascending, anterior, pale reddish.

polydactylos, expanded, glabrous, glaucous-green, veined with brown fibres beneath: lobes rounded digitate; fertile ones marginal, long, crowded, tapering: targets anterior, roundish, revolute, ascending, black-brown.

aphthosa, expanded, glabrous, green with brown warts, nearly veinless, with black fibres and a bluish stripe beneath; lobes lax, rounded; fertile ones marginal, scattered narrow: targets anterior, ascending, round, red.

horizontalis, expanded, glabrous, glaucous-green, black-brown, reticulate with veins beneath: lobes oblong, rounded; fertile ones marginal, short depressed: targets anterior horizontal, transversely oblong, reddish brown.

Penthorum, 59.

sedoides (virginian orpine. O. g-y Ju. 2.) stem branching, angled: leaves lanceolate, subsessile, unequally and densly serrate: spikes terminal, panicled, alternate and cymed: seeds pitted.

Pentstemon, 73.

pubescens (beard-tongue. W. A. C. P. w-p. J. 2.) stem hairy: leaves serrulate, lance-oblong, sessile: flowers panicled: the barren filament bearded from the apex to below the middle. Var. *latifolia* has broad smooth leaves. Var. *augustifolia* has narrow, hairy, obscurely denticulate leaves. From 1 to 2 feet high.

laevigata (P. A? w-p. Ju. 2.) stem glabrous: leaves smooth, oblong-ovate, clasping at the base, slenderly toothed, lower ones entire; flowers panicled: barren filament bearded above. About 2 feet high.

Periploca, 43.

graeca (follicle vine. P. p. M. ♄.) flowers hirsute within, terminal ; stigma with 10 crenatures.

Petalostemon, 77.

candidum (split flower. P. w. Ju. 4.) spike cylindric, peduncled : bracts longer than the flower : calyx glabrous : leaves three-paired.

Peziza, 118.

scuttellata (dish fungus.) sessile, flat, orange-red, buff without ; margin convex, hairy.
coccinea (scarlet dish. O.) scarlet within and buff-yellow without.
cinerea, sessile, grey, reflected : margin lobed, curled.
citrina, stem very short and nearly wanting : yellow.
aurea, stem short : gold yellow, flat.
ochroleuca, stem blackish at the base : funnel-form, leathery, dusky-ochre.

Phacelia, 39.

bipinnatifida (phacelia. P. b. M.) erect : leaves pinnatifid, divisions gash-lobed : racemes mostly bifid, oblong, many-flowered : divisions of the corol entire.
fimbriata (P. b. M. ☉.) ascending, hairy : leaves sessile, pinnatifid : divisions lanceolate, acute, entire, hispid-pilose above, glabrous beneath : racemes solitary ; pedicels elongated : divisions of the corol ciliate-fringed.
parviflora (P. b. M. ☉.) diffused, pubescent : leaves subsessile, pinnatifid : divisions oblong, obtusish, entire : racemes solitary ; pedicels short : divisions of the corol round, entire.

Phalaris, 30.

arundinacea (ribbon grass, wild canary grass. W. Y. P. Ju. ♃.) panicle oblong, ventricose, compact: glumes acuminate, 3-nerved: leaves scabrous at the margin; sheaths striate. Var. *picta*, leaves variously striped—This variety is the ribbon grass of the gardens.

canariensis (canary grass. E. ☉.) panicle spike-form, ovate: glumes of the calyx boat-form, entire: corol 4-valved; outer ones lanceolate, glabrous, inner ones villose.

Phascum, 106.

crispum (earth moss.) caulescent: capsule nearly sessile: leaves lanceolate, pointed, curled when dry.

patens, caulescent: capsule about sessile: leaves lance-ovate, serrate at top, spreading.

muticum, stemless: capsule sessile: leaves ovate, without points, concave, converging.

serratum, stemless: shoots spreading, branched: capsule sessile: floral leaves erect, lanceolate, serrate.

Phaseolus, 79.

perennis (wild kidney-bean. C. P. p. Ju. ♃.) twining, wholly pubescent: leaves broad-ovate, the odd one subcordate: racemes in pairs, longer than the leaves: peduncles in pairs: bracts obsolete: legumes peduncled.

helvolus (C. P. r. ☉. or ♃.) twining, a little rough-haired: leafets oblong-oval, subdeltoid, obtusish: heads of flowers long-peduncled: banner short, wings expanded, large: legumes terete-linear.

vulgaris (common pole-bean. E. p. w. Ju. ☉.) stem twining: racemes solitary, shorter than

the leaves : peduncles in pairs : bracts smaller than the calyx : spreading, legumes pendulous. From the East Indies.

coccineus (scarlet runner. E.) stem twining : racemes in pairs, longer than the leaves : peduncles in pairs : bracts obsolete : legumes pendulous.

nanus (bush-bean, six-weeks bean. E. ☉.) stem erect, smooth : bracts larger than the calyx : legumes pendulous, compressed, rugose. Seeds variously coloured.

Philadelphus, 61.

coronarius (mock-orange, false syringa. E. w. J. ♄.) styles distinct : leaves ovate, subdentate. From Asia Minor or Greece.

inodorus (scentless syringa. Southern states. w. J. ♄.) leaves ovate, acuminate, entire : divisions of the calyx acute : style undivided, longer than the stamens ; stigmas 4, oblong. Flowers large.

grandiflorus (scentless syringa. Southern states. w. J. ♄.) leaves ovate, acuminate, denticulate : axils of the veins with fascicles of hairs beneath : divisions of the calyx acuminate : style undivided, longer than the stamens : stigmas 4, linear.

Phleum, 31.

pratense (timothy grass. O. J. ♃. and ♁.) spike cylindric, very long, ciliate : culm erect.

Phlox, 39.

paniculata (smooth-stem lichnidia. P. r. w. Ju. ♃.) glabrous, erect : leaves lanceolate, narrowing gradually, flat, margins rough : corymbs panicled : divisions of the corymb rounded : calyx awned.

pyramidalis (P. p. J. ♃.) erect, glabrous; stem scabrous: leaves heart-ovate, acute: panicle fastigiate, pyramidal; divisions of the corol wedge-truncate: teeth of the calyx suberect, lanceolate acute.

maculata, (spotted lichmidia. P. r. w. Ju. ♃.) erect; stem spotted, scabrous: leaves lance-oblong, glabrous, margins rough: panicle oblong, flowers crowded: divisions of the corol rounded: teeth of the calyx acute, recurved.

suaveolens (P. w. Ju. ♃.) erect; stem very glabrous, not spotted: leaves lance-ovate, smooth: raceme panicled: divisions of the corol rounded: teeth of the calyx lanceolate, acute, erectish. Sweet-scented.

aristata (P. r. w. J. ♃.) weak, erect, viscid-pubescent: leaves lance-linear: panicle lax, fastigiate; pedicels somewhat in pairs: divisions of the corol somewhat obovate; tube curved, pubescent: teeth of the calyx long, subulate.

pilosa (creeping lichmidia. Southern states. p. w. J. ♃.) small decumbent, pubescent: leaves lance-linear, short, roughish: flowers subsessile and fascicled at the top: divisions of the corol round-obtuse, tube straitish, glabrous: tooth of the calyx subulate-acuminate.

divaricata (P. p-b. M. ♃.) low, decumbent, pubescent: leaves lance-oval, upper ones alternate: branches divaricate, lax, few-flowered: divisions of the corol subcordate: teeth of the calyx linear-subulate.

stolonifera (P. b-b. J. ♃.) stoloniferous-creeping, pubescent: radical leaves obovate-spatulate, cauline ones lance-oval: corymb spreading, few-flowered: divisions of the corol obovate: teeth of the calyx linear, reflexed.

subulata (mountain pink. New Jersey. r. M. ♃.) caespitose, white-pubescent: leaves linear, pungent, ciliate; corymbs few-flowered, pe-

dicels 3-cleft: divisions of the corol, wedge-form, emarginate: teeth of the calyx subulate, scarcely shorter than the tube of the corol.

setacea (C. r. J. 4.) caespitose, pubescent: leaves fascicled, subulate, pungent, ciliate: pedicels few, terminal, subumbelled; divisions of the corol wedge-form, emarginate: teeth of the calyx subulate, thrice as short as the tube of the corol.

Phryma, 70.

leptostachia (lopseed. O. P. w. Ju. 4.) leaves ovate, coarsely serrate, petioled: spike terminal, slender: flowers opposite. As the fruit begins to form, it lops down against the rachis.

Phyllanthus, 96.

obovatus (leaf-flower. P. J. ☺.) leaves obovate, obtusish: flowers in pairs, axillary, pedicelled: stem erect, branching, terete. A span high.

Physalis, 40.

viscosa (winter cherry. C. P. W? y. Ju. 4.) leaves in pairs, heart-oval, repand, obtuse, subtomentose: stem panicled above: fruit-bearing calyx pubescent.

pensylvanica (P. y. J. 4.) leaves ovate, subrepand, obtuse, nakedish: stem branching: peduncles solitary, a little longer than the petioles.

philadelphica (New England. y. p. Ju. ☺.) leaves ovate, repand-toothed, glabrous: stem very branching: peduncles solitary, much shorter than the petioles.

lanceolata (P. y. J. 4.) leaves in pairs, lance-oval, subentire, gradually narrowing into the peti-

ole, pubescent: stem dichotomous: calyx villose.

alkekengi (common winter cherry. E. 4.) leaves in pairs, entire, acute: stem subramose below. Calyx of the fruit red or reddish.

PHYTOLACCA, 60.

decandra (poke weed. O. w. Ju. 4.) leaves ovate, acute at both ends: flowers racemed, berries flattened at the ends. A good substitute for the Ipecac. See Bigelow's Medical Botany. The young shoots, used as a substitute for asparagus, are an excellent remedy in cases of habitual costiveness.

PICRIS, 83.

hieracioides (oxtongue. E. 4.) stem erect, scabrous: leaves clasping, lanceolate, toothed: flowers subcorymbed.

PINUS, 96.

1. *Leaves solitary, with separate bases.*

balsamea (fir tree, balsam tree. O. M. ♄.) leaves flat, emarginate or entire, glaucous beneath, suberect above, recurve-spreading: cones cylindric, erect: bracts abbreviated, obovate, long-mucronate, subserrulate.

fraseri (double spruce. W. N. P. J. ♄.) leaves solitary, flat, emarginate, glaucous beneath, somewhat one-sided, thick above, erect: cones ovate-oblong, erect: bracts elongated, reflexed, wedge-oblong, emarginate, short mucronate, gash-toothed. I believe this species grows in all parts of the northern states. But I had never observed, that this was distinct from the nigra, until last summer.

nigra (black spruce. O. M. ♄.) leaves 4-sided, scattered on all sides of the branchlets, erect, strait: strobiles ovate; scales oval, with undulate margins, erose-toothed at the apex.

alba (white spruce. O. M. ♄.) leaves 4-sided, incurved: strobiles subcylindric, lax: scales obovate, entire.

canadensis (hemlock tree. O. M. ♄.) leaves flat, denticulate, two-ranked: strobiles ovate, terminal, scarcely longer than the leaves. The bark is used in tanning leather.

rubra (red spruce, spruce fir. Can. New-England. M. ♄.) leaves solitary, subulate: strobiles oblong, obtuse: scales rounded, sub-2-lobed, margin entire.

2. *Leaves in pairs, with the bases bound together by sheaths.*

resinosa (yellow pine, norway pine, red pine. W. Can. A. N. Catskill. M. ♄.) leaves and sheaths elongated; strobiles ovate-conic, rounded at the base, subsolitary, about half as long as the leaves; scales dilated in the middle, unarmed. Bark of a reddish colour and much smoother than the rigida and strobus. Often grows very tall and strait.

inops (jersey pine. C. M. ♄.) leaves short: strobiles oblong-conic, recurved, of the length of the leaves: prickles of the scales subulate, strait.

banksiana (scrub pine, grey pine. District of Maine. M. ♄.) leaves short, rigid, divaricate, oblique, recurved, twisted: scales without prickles.

3. *Leaves in threes, with the bases bound together by sheaths.*

variabilis (three leaved yellow pine. New-Eng-

land? M. ½.) part of the leaves in pairs, the others in threes, slender, channelled: strobiles ovate-conic, sub-solitary; prickles of the scales incurved.

rigida (pitch pine. O. M. ½.) leaves with abbreviated sheaths: staminate aments erect-incumbent: strobiles ovate, scattered or aggregated; spines of the scals reflexed. Though very common, it grows the most plentifully on barren sandy plains.

serotina (pond pine. P. New-Jersey. M. ½.) leaves elongated: prickles of the scales strait and very slender. Probably a variety of the last.

4. *Leaves in fives, with bases bound together by sheaths.*

strobus (white pine. O. M. ½.) leaves slender; sheaths short: strobiles pendant, cylindric, longer than the leaves; scales somewhat lax. This is called Weymouth pine by the English. Perhaps nine-tenths of the boards, used in N. America, are of this species.

5. *Leaves many in a fascicle.*

pendula (black larch, tamarack, hack-matack. O. M. ½.) leaves deciduous: strobiles oblong; margins of the scales inflexed: bracts guitar-form with a slender point.

microcarpa (red larch. P. Can. M. ½.) leaves deciduous: strobiles roundish, few-flowered; scales reflexed: bracts oval, obtuse, acuminate. These two last species were considered as varieties of the same; but Mr. Lambert proved their specific difference by raising them from the seed.

larix (common larch. E. ½.) leaves deciduous: strobiles ovate-oblong; margins of the scales reflexed, torn: bracts guitar-form.

Pisum, 79.

sativum (pea. E. p-w. J. ☺.) petioles terete: stipules round and crenate at the base; peduncles many-flowered. Var. *umbellatum*, (bouquet pea) has the stipules 4-cleft, acute. Var. *quadratum*, (quadrate pea) fruit ash-colour, 4-sided. Var. *humile*, (dwarf pea) stem erect, not climbing: leafets roundish.

maritimum (sea pea. Y. C. p-b. Ju. 4.) petioles flattish above: stem angled, decumbent: stipules saggittate: peduncles many-flowered. Mr. Rafinesque says, this may be the Vicia mitchilla. I have before me specimens of the latter, collected near New-York; and of the former, which I collected half a mile north-west from Whitney's gun-factory in New-Haven. They certainly appear to me to differ materially in some of their generic and specific characters, particularly in the pubesence of their stigmas; though there is a very great resemblance in their habits.

Plantago, 34.

major (plantain. O. w. J. 4.) leaves ovate, subdentate, subglabrous: scape terete: spike oblong, imbricate.

lanceolata (ribwort. O. J. 4.) leaves lanceolate, villose: spike short, cylindric: bracts ovate, acuminate: scape angled, with close-pressed hairs.

virginica (dwarf plantain. Y. C. P. r-y. J. ☺.) whitish pubesence on all parts: leaves lanceovate subdenticulate: flowers remotish: scape angled. The corol adheres to the germ so closely, that at first view it appears to be superior.

cordata, (P. N? C. Can. w. J. 4.) leaves heart-

ovate, broad, subdentate, glabrous: spike very long; flowers subimbricate, lower ones scattered: bracts ovate, obtuse.

pauciflora (New-England, New-Jersey. Pursh. Au. 4.) leaves lance-linear, entire, sub-glabrous: scape terete, shorter than the leaves: spike few-flowered, interrupted: bracts ovate, acute, glabrous.

cucullata (District of Maine. Ju. 4.) leaves ovate, concave-cowled, 9-nerved, pubescent beneath: spike cylindric, imbricate: scape tall, terete.

media (P. w. J. 4.) leaves lance-ovate, pubescent: spike cylindric; scape terete. In one variety the leaves are hirsute and the spikes branching.

maritima (H. Y. C. P. Au. 4.) leaves fleshy, subulate-linear, hairy at the base: scape terete, pubescent: spike cylindric: bracts obtuse. Near salt water.

Platanus, 95.

occidentalis (button-wood, american planetree, false sycamore. O. J. ½.) leaves quinquangular, obsoletely lobed, toothed: stem and branches becoming white. Grows to a greater size than any other tree in America. Very frequently hollow.

Poa, 32.

pratensis (common meadow grass. O. M. 4.) panicle spread: spikelets about 4-flowered: glumes lanceolate, 5-nerved, connected by down: stipules abbreviated, obtuse.

compressa (blue grass. O. J. 4.) panicle compact, somewhat 1-sided, glabrous: culm compressed, hardly erect: florets angled, connected at the base by entangled hairs; branches of the panicle in pairs, abbreviated: spikelets sessile. Root creeping.

palustris (swamp meadow grass. C W.M. 2.) branches of the panicle aggregated, five, glabrous; branchlets scabrous with all the florets pedicelled: calyx 2-flowered; valves equal, acuminate, scabrous at the keel: corol with the apex of the valves yellowish and the base pubescent: leaves somewhat clasping; stipules ovate.

quinquefida (giant meadow grass. P. C. W. J. 2.) panicle erect; lower branches naked beneath: spikelets oblong, alternate, subsessile, 6-flowered: outer valve of the florets on the back beneath, and the margin villose, and 5-cleft at the apex: the neck of the sheath and the axils of the panicle pilose: leaves and the erect culm glabrous. It grows three or 4 feet high in wet meadows near Williams College.

annua (C. W. M. ☺.) panicle spreading: spikelets ovate: florets remotish, 5-nerved, free (libera): culm oblique, compressed.

nervata (C. P. J. 2.) panicle equal, diffused spikelets ovate, 5-flowered: flowers free, 7-nerved, obtuse: culm sulcate, subangled: root a little creeping.

tenella (C. Ju. ☺.) panicle capillary, somewhat whorled: peduncles zigzag: spikelets linear, about 6-flowered, pedicelled: flowers oblong, acute, minute, glabrous: leaves short, flat, subulate at the apex, glabrous: sheaths bearded at the neck: culm decumbent.

hirsuta (C. P. Ju. 2.) panicle capillary, very branching: spikelets scattered, long-pedicelled, about 5-flowered: flowers oblong, acute, glabrous: leaves longer than the culm, glabrous; sheaths very hirsute: culm thick, erect.

brevifolia (C. W? P. M. 2.) panicle lax; branches in pairs, horizontal, zigzag at the apex, or in threes, glabrous: spikelets all pedicelled; the pedicells jointed at the base: calyx 2-valved, 3 or 4-flowered, valves acute: corol with one valve keeled, 5-nerved, pubescent: culm

subangled, erect: lower leaves abbreviated, keeled.

viridis (C. P. J. ♃.) panicle spread; branches of the panicle aggregated, divided into 4 to 6 parts, jointed at the base: spikelets ovate acuminate, about 4-flowered: glumes lanceolate, 3-nerved, scabrous on the keel; stipule abbreviated, retuse, crenate, truncate.

capillaris (C. P. Can. J. ☺.) pancile lax, capillary, very spreading: spikelets 3 to 5-flowered: flowers ovate, acute, pubescent: leaves hairy at the neck: culm very branching.

trivialis (W. P. J. ♃.) panicle spreading: spikelets 3-flowered: glumes lanceolate, 5-nerved, connected at the base by down: stipules elongated.

nemoralis (W? J. ♃.) panicle and leaves slender: spikelets lanceolate sub-3-flowered: glumes acute, obsoletely 5-nerved: stipules very short, crenate.

sesleroides (P. Au. ♃.) panicle erect when young, becoming lax and nodding when old; rachis and branches zigzag: branches in pairs and alternate, jointed and hairy at the base; branchlets very short, alternate, terminated by the oblong spikelets: calyx about 5-flowered, mucronate; one valve of the corol keeled, mucronate, 3 to 5-cleft. P. flava.

aquatica (Can. P. J. ♃.) panicle erect, half-whorled: branchlets zigzag: spikelets ovate, 5-flowered, thick: flowers obtuse, glabrous, 7-nerved: culm erect, glabrous, terete.

parviflora (C. P. Ju. ♃.) panicle spread, capillary, half whorled, very branching: spikelets small, about 4-flowered: flowers oblong, subacute, delicately striate: leaves two ways, exceeding the culm, glabrous: stipules lanceolate, acuminate.

pectinacea (P. New-Jersey, Ju. ☺.) panicle lax, spreading, erect; spikelets linear, 12-flower-

ed : inner valves of the florets remain, after the remainder of the flowers are removed, and give rachis a comb-like appearance : flowers ovate, acuminate, 3-nerved : neck of the sheath and axils of the panicle pilose : leaves and erect culm glabrous.

spectabilis (C. P. Ju. ☺.) panicle divaricate, very branching : spikelets pendant, linear, 10-flowered : flowers ovate, acute, margin and back scabrous : neck of the sheaths and axils of the panicle pilose : leaves and short erect culm glabrous.

reptans (P. J. ☺.) culm ramose, creeping : panicle fascicled : spikelets subsessile, very long, many-flowered : flowers oblong, acute, lax : leaves short, pubescent. A very delicate grass.

stolonifera (P. J.) culm subscabrous, geniculate, stoloniferous at the base : panicle whorled, diffused, scabrous ; branches angled, aggregate and whorled about in fives : calyx 2 or 3 flowered : stipules of the lower leaves obtuse, of the upper ones acuminate, elongated.

pilosa (P. New-Jersey. Ju. ☺.) panicle erect, at length diffuse ; lower branches aggregated 4 to 6 together, upper ones solitary, zigzag, branchlets scabrous : calyx 4 to 12-flowered : leaves 5-nerved, hairy at the base, with the sheath striate, glabrous, hairy at the neck : stem oblique and procumbent, with subangled joints.

obtusa (P. New-Jersey, New-England. Au. ♃.) panicle crowded, crispid, contracted ; branches in pairs or in threes, crowded ; branchlets zigzag : calyx 2-valved, less than the corol, 5 to 7-flowered ; valves white at the apex, obtuse or acute : outer valve of the corol obtuse, 5-nerved, glabrous : culm erect, glabrous.

maritima ? (New-England) panicle erect, with a glabrous, striate rachis ; branches in threes, the middle one shorter ; branchlets gradually thickening below the calyx : valves unequal,

obtuse, one broader, 4-flowered : corol 2-valved, larger than the calyx : culm and leaves striate, glabrous : stipules abbreviated, torn. On the sea-shore.

uniflora (New-England and New-Jersey.) panicle very slender, stiffly erect ; branches solitary, erect scabrous : calyx 1-flowered, bifid at the apex : corol larger than the calyx, becoming black : leaves setaceous striate. This can hardly be called a poa, as the calyx is but 1-flowered.

festucoides (fescue meadow grass. C. J.) panicle diffuse, nodding, subsimple ; lower branches very long : flowers few, at first erect : spikelets oblong, teretish, 3 to 5-flowered, awnless, all pedicelled. Three or four feet high. Torrey. A new species, discovered by J. Le Conte, esq.

Podalyria, 56.

tinctoria (wild indigo. O. y. Ju. ♃.) very glabrous, branching : leaves ternate, sub-sessile ; leafets wedge-form, round-obtuse : stipules obsolete, oblong, acute, many times shorter than the petioles : legumes ovate, long-stiped.

coerulea (Y. b. J. ♃.) glabrous : leaves ternate, very short-petioled ; leafets wedge-oblong, obtuse : stipules lanceolate, acute, twice as long as the petiole : legumes acuminate. I have never heard of this species in our district, excepting at the East rock in New-Haven.

Podophyllum, 64.

peltatum (wild mandrake, may-apple. O. W. M. ♃.) stem terminated with 2 peltate palmate leaves ; flower single, inserted in the fork, formed by the petioles of the leaves. Sometimes the plant is 3-leaved, and sometimes the flower is inserted on the side of one of the petioles.

Podostemum, 90.

ceratophyllum (thread-foot. P. Ju. ♃.) stem filiform, floating: leaves pinnate: flowers axillary. Attached to rocks and large loose stones in shallow waters.

Polemonium, 39.

reptans (greek valerian. P. b. M. ♃.) leaves pinnate, in sevens: flowers terminal, nodding.

Polyanthes, 50.

tuberosa (tuberose. E. ♃.) flowers alternate in pairs: rootlets tuberous: scape scaly: leaves linear, long. Sweet scented.

Polygala, 78.

1. *Flowers with a crest-like nectary.*

incarnata (milkwort. C. r. J. ☉.) stem somewhat simple, erect: leaves scattered, subulate: spikes oval-oblong: corol with a slender, elongated tube.

rubella (false low-centaury, ground-flower. Y. C. P. r. J. ♃.) pubescent: stem simple, erect: leaves narrow-lanceolate, acute: raceme terminal: bracts subulate, solitary, caducous: wings of the calyx nerve-veined, round-truncate, longer than the corol. This curious plant is very abundant on the sand plains west of Ball's spring in New Haven. In the latter part of summer it sends off flowering shoots under ground, which produce numerous abortive capsules.

paucifolia (flowering wintergreen. H. A. N. Y. C. P. r. M. ♃.) small, large-flowered: stem simple,

erect, naked below: leaves ovate, acute, glabrous, near the top of the stem: flowers terminal, about in threes. Three or four inches high; and differs much from the rest of the species—the leaves and flowers being much larger in proportion to its size.

2. *Flowers without the crest.*

uniflora (Lake Ontario. 2.) small: stem simple, erect, nakedish below; leaves few, broad-ovate, narrowing into the petiole: flowers solitary, scattered, pedicelled, nodding.

senega (seneca snake-root. A. C. P. Hudson. r. or. w. J. 2.) stem erect, simple, leafy; leaves alternate, lanceolate: spike terminal, filiform: flowers alternate.

lutea (yellow milkwort. C. y. Ju. ☉. or ♄.) stem simple or branching: radical and lower cauline leaves spatulate, the others lanceolate: spike head-cylindric, crowded, peduncled.

viridescens (P. g-w. Ju. ☺.) stem erect, very simple: leaves lance-linear, obtusish: flowers in a terminal globular head.

sanguinea (O. r. Ju. ☺.) stem erect, corymb-branched at the top: leaves alternate, linear: flowers in a head-form spike; peduncles squarrose.

verticillata (dwarf snake-root. O. w. J. ☺.) stem erect, branching: leaves whorled and scattered: spike filiform, peduncled: flowers distinctly alternate, approximate. About 6 inches high, of a bluish appearance.

cruciata (P. N. Y. r. g. Ju. ☺.) stem erect, ramose, wing-angled: leaves in fours, lance-linear; flowers in spiked sessile heads.

Polygonatum, see Convallaria.

Polygonum, 55.

1. *Flowers axillary.*

marinum (sea knotweed, New Jersey. r. w. Au. 2! or ♄.) stamens 8, styles 3; stipules (ochreis) obtuse, torn, membranaceous: leaves lance-linear, acute, margin revolute, fleshy: stem somewhat woody. A small, prostrate, evergreen plant.

aviculare (knot-grass. O. w. M. ☺.) stamens 8, styles 3: leaves lanceolate, scabrous at the margin; stipules nerved, remote: stem procumbent: flowers sessile, small. Var. *latifolium*, leaves broad-oval-; stem ascending. I have generally found this variety pentandrous.

ramosissimum (branching knotgrass. P. g-w. J. ☺.) stamens 3 or 5, styles 3: leaves lanceolate: stipules abbreviated, torn at the margins: branches interruptedly many-flowered: stem strait-branched, striate.

tenue (slender knotgrass. Y. A. N. C. w. Ju. ☺.) leaves long-linear, strait acuminate: stipules tubular, apex villose: stem slender, erect, branched, acute-angled: flowers alternate, subsolitary.

2. *Flowers in slender spikes.*

lapathifolium (P. r-w. Au. ☺.) stamens 6, styles 2: stipules awnless: peduncles scabrous: seeds concave on all sides.

punctatum (water-pepper, biting knotweed. O. w. Au. ☺.) stamens 8, styles 3: leaves lanceolate, glabrous; stipules lax, glabrous, ciliate at the apex, spotted: spike filiform, weak, somewhat nodding: bracts remotely alternate. We have usually called this plant the hydropper, but it differs from the European specimens consider-

ably. Pursh calls it hydropiperoides, after Mich. Mr. Elliot has removed the difficulty by giving it this name.

mite (tasteless knotweed. C. P. J. ☺.) stamens 8, styles 3 : leaves narrow lanceolate, subhirsute : stipules hirsute, long-ciliate : spikes linear : bracts ciliate, subimbricate.

virginianum (C. Y. A. H. P. w. Ju. ♃.) stamens 5, styles 2, unequal : leaves broad-oval : spikes wand-like : flowers remote.

3. *Flowers in thick crowded spikes.*

viviparum (Whitehills. Au. ♃.) stem simple : leaves lance-linear, glabrous, margin revolute : spike single, linear : bracts ovate, acuminate. Dr. Bigelow and Mr. Boot found this species growing on the Whitehills in New Hampshire. Natural history in all its departments is greatly indebted to the incessant exertions of these two gentlemen.

coccineum (lake knotweed. W. C. H. P. r. Au. ♃.) stamens 5, styles 2 or 1 : spikes cylindric, dense : stipules truncate, glabrous : leaves ovate.

persicaria (ladies' thumb, heart-spot knotweed. O. r. Ju. ☺.) stamens 6, styles 2 : spikes ovate-oblong, erect : peduncles smooth : leaves lanceolate : stipules smoothish, ciliate.

pensylvanicum (knee knotweed. O. Ju. ☺.) stamens 8, styles 2 or 1 : spikes oblong : peduncles hispid ; leaves lanceolate : stipules glabrous, not ciliate : stem with swelling knee-joints.

orientale (prince's feather. E. r. Au. ☺.) stamens 7, styles 2 : leaves ovate : stem erect, tall : stipules rough-haired, somewhat salverform. Grows 5 or 6 feet high. It has become naturalized in many places.

4. *Flowers in spiked, panicled racemes.*

articulatum (joint-weed. A. N. Granby (Con.) P. r. w. Ju. ☺.) stamens 8, styles 3 : racemed spikes in a panicle, filiform : peduncles filiform, solitary, proceeding from above the imbricate truncate bracts : leaves linear : stipules sheathing, truncate. About a foot high, terminated by delicate racemes ; to which the bracts give a jointed appearance.

5. *Flowers subracemed ; leaves cordate, sagittate or hastate.*

sagittatum (prickly knotweed. O. w. J. ☺.) stamens 8, styles 3 or 1 ; flowers in heads : leaves sagittate : stem with prickles reversed, or curved towards its base, climbing.

arifolium (halbert knotweed. O. r-w. Ju. ☺.) stamens 6, styles 2 or 1 ; flowers distinct : spikes few-flowered : leaves hastate : stem with prickles reversed, subercct.

fagopyrum (buck-wheat. E. r-w. Ju. ☺.) stamens 8, styles 3 : racemes panicled : leaves heart-sagittate : stem erectish, unarmed : angles of the seeds equal.

convolvulus (bind knotweed. O. w. r. Ju. ☺.) stamens 8, styles 3 : leaves oblong, heart-hastate : stem twining, angled, roughish : divisions of the calyx obtusely keeled.

scandens, (climbing knotweed. O. w. r. Au. 4.) stamens 8, styles 3 : leaves broad-cordate : stipules truncate, naked : stem twining, glabrous : calyx bearing the fruit 3 winged.

cilinode (P. Can. Ju. ☺.) stamens 8, styles 3 ; leaves cordate : stipules subacute, surrounded at the base with an outer ciliate series : stem angled, prostrate or climbing, roughish : divisions of the calyx-obtusely keeled.

Polymnia, 88.

canadensis (white leaf-cup. P. Can. w. or y. J. 2.) viscid-villose: leaves denticulate, acuminate; lower ones pinnatifid, upper ones 3-lobed or entire. Two or three feet high. Smell balsamic.

uvedalia (yellow leaf-cup. P. y. Ju. 2.) leaves opposite, 3-lobed, acute, decurrent into the petiole: lobes sinuate-angled: rays elongated. Taller than the last.

Polypodium, 102.

vulgare (polypod. O. Ju. 2.) frond deeply pinnatifid; divisions lance-linear, obtuse, crenulate, approximate, upper ones gradually smaller: fruit-dots solitary: root chaffy. Var. *virginianum*, has a naked root.

hexagonopterum (C. P. W. Ju. 2.) frond doubly pinnatifid, smoothish; two lower divisions deflexed; sub-divisions lanceolate, obtuse, ciliate, those of the under leafets gash-crenate and of the upper ones entire; the lowest ones adnate-decurrent: fruit-dots minute, solitary. The whole frond together presents a triangular form.

connectile (W. Can. Ju. 2.) frond doubly pinnatifid, ciliate, divisions opposite contiguous, adnate: sub-divisions somewhat oval: stipe chaffy: fruit-dots minute.

calcareum (W. P. Ju. 2.) frond ternate, doubly pinnate, strait, subrigid; divisions obtusish, subentire: fruit-dots marginal, confluent.

Note. A polypodium grows on the mountain near White Oak Creek, 3 miles from Williams College, which agrees with none of the above descriptions. It is a little more than a span high; frond pinnate, with pinnatifid leafets; the divis-

ions of the leafets sub-obovate, toothed. Whether it is a new species, or one already described and not credited to North America, I have not had it in my power to ascertain. It flowers in August.

Polytrichum, 107.

1. *Stem simple.*

juniperinum (hair-cap moss. O. M. ♃.) leaves lance-linear, pointed, entire, inflected at the edges, rough on the keel: capsule square, on a flat receptacle.

commune, leaves lance-linear, acute, serrulate, spread: capsule square, on a roundish receptacle.

gracile, leaves lance-linear, acute, serrate, spread; capsule obovate, sub-angular, oblique, contracted at the base.

attenuatum, leaves lance-linear, acute, serrate, spread: capsule square, drooping, contracted at the base.

2. *Stem more or less branched.*

undulatum (P.) leaves lanceolate, serrate, undulate: capsule cylindric, drooping: lid subulate: calyptre naked.

hercynicum, leaves linear, incurved when dry, mostly entire: capsule ovate, cylindric, erect: calyptre single, hairy when young.

urnigerum, leaves lanceolate, serrate, spread: capsule cylindric, erect: lid pointed.

ambiguum (Can.) stem almost simple: leaves long-subulate, aculeate-serrate: capsule somewhat nodding, cylindric: lid long-cuspidate, acute.

asciculatum (Can.) stem shortish, fascicle-branched above: leaves linear, acute, slightly aculeate-serrate: peduncles shortish: capsule

cylindric, strait ; lid somewhat convex, with a short mucronate beak.

3. Stemless.

ensylvanicum (P.) leaves very few ; lower ones dilated and compressed into an oblong form, upper ones subulate-mucronate, obscurely toothed : capsule erect, oblong-cylindric ; lid convex, long-mucronate, inclined.

PONTEDERIA, 49.

ordata (pickerel weed. A. P. H. Y. C. b. Ju. 4.) leaves heart-oblong, obtuse : spike many-flowered, compact : divisions of the corol oblong. In wet places.

POPULUS, 100.

remuloides (white poplar, american aspen. O. Ap. ♄.) leaves heart-roundish, abruptly acuminate, tooth-serrulate, glabrous, a little pubescent at the margin, with 2 glands at the base on the upper side ; petioles compressed, in the young state silky. The flatness of the petioles causes the leaves to take a tremulous motion, from the slighest action of the atmosphere.

randidentata (tree poplar. W. P. A. Catskill. Ap. ♄.) leaves round-ovate, acute, unequally and coarsely sinuate-toothed, glabrous ; in the young state villose : petioles compressed.

etulifolia (birch-leaf poplar. C. Lake-Ontario. Ap. ♄.) leaves rhomboidal, long-acuminate, dentate, glabrous : young branches pilose.

ngulata (balm-of-gilead, water poplar, cotton wood. O. Ap. ♄.) leaves ovate-deltoid, acuminate, obtusely hook-toothed, glabrous ; younger ones broad-cordate : branches wing-angled.

alsamifera (balsam poplar. W. N. Can. Ap. ♄.) leaves ovate, acuminate, close-pressed serrate, rusty or mealy under side ; buds resinous.

candicans (New England. Ap. ♄.) leaves cordate ovate, acuminate, obtusely and unequally serrate, whitish beneath, sub-3-nerved, net-veined; petioles hirsute: buds resinous: branches terete.

laevigata (cotton tree. Can. P. Ap. ♄.) leaves round-ovate, deltoid, acuminate, subcordate unequally serrate, glabrous, glandular at the base; petioles compressed: younger branches angled.

heterophylla (various-leaved poplar. P. M. ♄.) leaves round-ovate, cordate with a small sinus sub-auricled, obtuse, hook-toothed; younger ones downy.

dilatata (lombardy poplar, italian poplar. E. Ap ♃.) leaves glabrous both sides, acuminate, serrate, deltoid, the breadth equal to or exceeding the length: branches erect, close to the stem. It is said that no pistillate plant of this species has been brought to America. Consequently no seeds are obtained from it.

PORCELIA, 67.

triloba (custard apple. P. p. Ap. ♄.) leaves smoothish, oblong-wedge-obovate: outer petals orbicular: fruit large, fleshy.

PORTULACCA, 60.

oleracea (purslane. O. y. J. ☉.) leaves wedge-form: flowers sessile.

POTAMOGETON, 36.

natans (pondweed. O. g. J. ♃.) leaves long-petioled, floating, lance-oval; at first some of them are subcordate.

fluitans (O. g. Ju. ♃.) lower leaves long, linear; upper ones lanceolate, nerved, coriaceous; all petioled.

setaceum (New Jersey. g. Ju. ♃.) upper leaves opposite, lanceolate, 5-nerved, short-petioled; lower ones alternate, filiform: spikes dense, alternate, shorter than the leaves.

perfoliatum (P. C. Can. g. Ju. ♃.) leaves heart-ovate, clasping, all immersed: spikes terminal, above water; flowers alternate.

lucens (P. C. W? g. Ju. ♃.) leaves very large, lanceolate, subsessile, middle rib thick: spikes long, cylindric. A species of this genus, which I find I have labelled P. lucens, grows in a pond 6 miles north of Williams College. But it may be a new species. The stem is branching, large, (from 1 to 2 feet long) flexouse, very leafy: leaves (3 or 4 inches long and one wide) lance-oblong, acute, entire, alternate, subsessile, about 9-nerved, net-veined, with the middle rib thick. The substance of the leaf is composed of translucent cellules; so that to the naked eye it appears to be a thin pallucid membrane. Spike from 1 to 2 inches long, with a peduncle thrice as long. The stipule above each leaf is about an inch in length; its substance resembling the leaf.

crispum (Can. P. r-g. J. ♃.) leaves alternate or opposite, lance-oval, undulate, serrate: spikes few-flowered.

pectinatum (Can. P. g. J. ♃.) leaves long-bristle-form, approximate, two-ranked, sheathed at the base: spikes terminal, interrupted, whorled: fruit ovate, turgid. All immersed but the spike.

gramineum (grass pondweed. W. P. g. Ju. ♃.) leaves lance-linear, alternate, sessile: stipules broad: stem terete, subdichotomous. Near Williams College this plant grows wholly immersed in stagnant water. In July some of these plants begin to raise their spikes of unopened flower buds to the surface of the water. As soon as the stigmas are fertilized by the

pollen, the spikes are again withdrawn to ripen the fruit under water. Other individuals succeed them, and the process goes on for several weeks. This curious operation of nature was particularly observed by the professors, several of the students and myself during the last season.

compressum (P. g. Ju. ☉. or 2.) leaves linear, obtuse: stem compressed: spikes short, 4 to 6-flowered.

Potentilla, 63.

1. *Leaves ternate.*

norwegica (cinquefoil. O. y. J. ☉.) erect, branching, hairy: stipules oval, toothed: leaflets lance-rhombic, gash-toothed: branches dichotomous: pedicels short, axillary, solitary: petals shorter than the calyx. Large.

tridentata (mountain cinquefoil. W. C. w. Ju. 2.) ascending, smoothish: stipules subulate: leaves wedge-oblong, 3-toothed at the end, a few close-pressed hairs: flowers in a terminal forked corymb: petals oblong-ovate, longer than the calyx. Grows plentifully northeast from Williams College on the mountain.

hirsuta (Can. Western part of New-York. w. Ju. 2.) erect, simple, very hirsute: stipules lanceolate, entire: leaves obovate, gash-laciniate: panicle few-flowered; pedicels short: petals smaller than the calyx.

2. *Leaves digitate in fives, rarely in sevens.*

Canadensis (common fivefinger. O. y. M. 2.) procumbent, subramose, whitish-silky: stipules ovate, gashed: leaves wedge-obovate, gash-toothed: stem ascending and creeping, hirsute: peduncles solitary, elongated, divisions of the calyx lance-linear: petals orbicular subentire, of the length of the calyx. This plant is so long in flower and assumes so many forms and sizes,

that students in botany often make several species of it. Persoon's diagnosis of *reptans* can be found in this plant; but we have no such species.

pumila (dwarf fivefinger. Y. C. P. Can. y. M. 4.) erect, almost stemless, pubescent: leaves wedgeform, spread at the apex, gashed, woolly beneath: peduncles shorter than the petioles, subsimple, 1-flowered: petals round, scarcely longer than the calyx. The last species often flowers before the stem has attained to any considerable length; when it may be mistaken for this species.

simplex (C. A. P. y. M. 4.) erect, unbranched, hirsute: stipules gashed: leaves oblong-oval, coarsely toothed, upper ones sessile: peduncles axillary, solitary, elongated, 1-flowered: divisions of the calyx lance-linear: petals round-obcordate, longer than the calyx.

argentea (silver fivefinger. O. w-y. Ju. 4.) stem prostrate and ascending, rarely sub-erect, branching, white-downy: stipules ovate acute: leaves wedgeform, gash-toothed, silvery white down beneath: petals retuse, scarcely longer than the calyx. Willdenow's description of this plant is certainly erroneous; and I have ventured to correct it.

recta (W? P. y. J. 4.) stem erect: leaves in fives and sevens; leafets lanceolate, coarsely toothed: petals obcordate, larger than the calyx. Corol large, pale.

3. *Leaves more or less pinnate.*

fruticosa (shrubby cinquefoil. C. P. Can. y. J. ħ.) erect, very branching, hirsute: stipules ovate, entire: leaves quinate-pinnate; leafets linear, oblong, flat; petals long: branchlets 1 or 2-flowered: five alternate divisions of the calyx linear; the rest broad-ovate, acute: petals ob-ovate, longer than the calyx. 3 to 5 feet high.

floribunda (C. Can. y. Ju. ♄.) erect, very branching, hirsute: stipules ovate, entire: leaves quinate-pinnate; leafets linear-oblong, margin revolute; petioles short: corymbs terminal, dichotomous, dense-many-flowered: divisions of the calyx subequal: petals roundish, of the length of the calyx. About 18 inches high, and resembles the last.

anserina (tansy cinquefoil. P. Can. Troy. y. J. 4.) creeping: leaves interruptedly pinnate, numerous, gash-serrate, silky, white downy beneath: peduncles solitary, 1-flowered. On the banks of the Hudson, near Troy.

pensylvanica (C. P. New-England. y. Ju. 4.) erect, down soft and whitish: leaves pinnate; leafets oblong, obtuse, subpinnatifid, tomentose: panicle strait, many-flowered: divisions of the downy calyx semi-oval. Var. *strigosa*, has tooth-pectinate leaves with revolute margins; flowers corymbed.

supina (Can. P. y. J. ☉.) procumbent, dichotomous: leaves pinnate; leafets oblong, deeply toothed: peduncles lateral, solitary, 1-flowered, spreading: leaves pinnate; leafets serrate: flowers in heads.

Poterium, 94.

sanguisorba (burnet. E. J. 4.) stem somewhat angled, unarmed: leaves pinnate; leafets serrate: flowers in heads.

Pothos, 35.

foetida (skunk-cabbage. O. p. Ap. 4.) stemless: leaves radical, heart ovate, very large: spadix with the flowers in a globular head. Very fetid. It is highly recommended as an expectorant and antispasmodic. See Barton's Veg. Mat. Med. under the generic synonum Symplocarpus. One modern author has placed this genus in the class Polyandria. I can conceive of no reason for

this; unless it be done by way of experiment, to ascertain what quantity of ridiculous innovation the public will bear.

Prenanthes 82.

alba (white lettuce. O. w. p. Au. ♃.) radical leaves angled-hastate, toothed, somewhat lobed; cauline ones round-ovate, toothed, petioled; uppermost ones lanceolate: panicle lax, the terminal fascicle nodding: calyx 8-cleft, 9 or 10-flowered. About two or three feet high.

altissima (O. p-y. Au. ♃.) stem branching: leaves petioled, 3-lobed, angled, denticulate, margin scabrous: racemes axillary: flowers nodding: calyx about 5-flowered. Very tall.

cordata (O. w-y. Au. ♃.) stem panicled above: leaves petioled, cordate, toothed, ciliate; floral ones sessile, oblong, entire: panicle lax, raceme-flowered; flowers nodding: calyx 6-cleft, 6-flowered. Tall.

virgata (P. New-Jersey. w-p. Au. ♃.) glabrous: stem very simple: leaves all lyrate-sinuate: branchlets somewhat one-sided: flowers pendant: calyx glabrous, 8-cleft, 10-flowered. 3 to 6 feet high.

rubicunda (P. b. Au. ♃.) leaves ciliate; radical ones hastate-angled, subentire; lower cauline ones obovate, tapering to the base, subangled; upper ones lanceolate, entire: raceme simple; flowers nodding. About 18 inches high.

Primula, 38.

acaulis (primrose. E. ♃.) leaves rugose, toothed, hirsute beneath: scape 1-flowered.

veris (cowslip primrose. E. r-y. ♃.) leaves rugose, toothed: limb of the corol concave; neck of the tube oblong, calyx inflated.

elatior (oxlip primrose. E. w-y. ♃.) leaves rugose,

toothed, hirsute: limb of the corol flat, neck of the tube hemispheric; flowers naked within.

auricula (auricula tulip. E. 4.) leaves serrate, fleshy, obovate: scape many-flowered: calyx mealy.

farinosa (birds' eye primrose, Can. r. 4.) leaves rugose, crenate, subglabrous, mealy beneath: umbel erect.

mistasinica (Can. 4.) small, glabrous: leaves oval-spatulate, subdentate: scape elongated: umbel few-flowered: limb of the corol reflexed, the divisions wedge-oblong, obtusely 2-cleft: capsule oblong, exsert.

Prinos, 49.

verticillatus (winter berry, false alder. O. w. J. ½.) leaves oval, serrate, acuminate, pubescent beneath: fascicles of staminate flowers axillary, umbelliferous; the pistillate flowers are aggregated; both 6-parted. Sometimes this shrub is monoecious and sometimes perfect-flowered. Generally in wet places. Berries red, permanent.

glaber (ink berry. C. P. Can. Ju. ½.) leaves evergreen, wedge-lanceolate, coriaceous, glabrous, shining, equally subdentate above: pedicels axillary, subsolitary, mostly 3-flowered. A low shrub.

laevigatus (New-Jersey. P. Ju. ½.) leaves lanceolate, close-pressed-serrate, acuminate, glabrous both sides, shining at the upper side, hardly pubescent at the nerves beneath: pistillate flowers axillary, solitary, subsessile; staminate flowers scattered—all 6-cleft.

ambiguus (New-Jersey. A. w. Ju. ½.) leaves oval, acuminate at both ends, mucronate-serrulate, sub-pubescent beneath: flowers 4 or 5-cleft; staminate ones crowded together at the lower branches, pistillate ones solitary.

Proserpinaca, 33.

palustris (mermaid weed. Y. C. P. H. g. Ju. ☺.) leaves linear-lanceolate, serrate above water; pinnatifid below.

pectinata (C. P. g. Ju. ☺.) leaves all pectinate-pinnatifid.

Prunella, 70.

pensylvanica (heal-all, self-heal. O. J. ♃.) leaves petioled, oblong-ovate, toothed at the base: lips of the calyx unequal, upper one truncate, awned: stem ascending. Willdenow calls this the *vulgaris*, and says the *pensylvanica* has the lips of the calyx equal, and that the upper one is 3-awned. But Muhlenberg has not adopted this division of the species.

Prunus, 61.

virginiana (wild cherry, rum cherry, cabinet cherry. O. w. M. ♄.) racemes erect, elongated: leaves oval-oblong, acuminate, unequally doubly-toothed, glabrous both sides; petioles generally bearing 4 glands. In open fields the limbs of this tree spread out into an elegant oval top. But in dense forests it grows to a very great height, with a few contracted branches. The bark is an excellent tonic.

serotina (choke-berry. O. w. J. ♄.) flowers in lax racemes: leaves simply serrate; lower serratures subglandular, middle rib bearded towards the base. In Muhlenberg's catalogue the English names of this and the preceding species are exchanged; probably through the mistake of the printer. Pursh seems, by his popular remarks, to have totally mistaken this and several other species of the Prunus.

canadensis (Can. P. w. ♄.) flowers in racemes:

leaves glandless, broad-lanceolate, rugose, sharply serrate, pubescent both sides, tapering into the petiole.

pensylvanica (C. P. New-England. w. M. ♄.) umbels subsessile, aggregated, many-flowered, and at length panicle-form: leaves lance-oblong, serrate, glabrous, 2 glands at the base: branchlets punctate.

borealis (P. New-England. w. M. ♄.) flowers corymbed; pedicels elongated: leaves oval-oblong, acuminate, erose-denticulate, membranaceous; glabrous: fruit subovate. Michaux says this is a small tree, with small red, sweet fruit.

nigra (A. W. P. w. M. ♄.) umbels sessile, solitary, few-flowered: leaves ovate, acuminate, unequally and sharply serrate, glabrous both sides: petioles with 2 glands. P. americana.

pygmaea (american sloe. New-England. w. M. ♄.) umbels sessile, aggregated, few-flowered: leaves oval-ovate, acute, glabrous both sides, sharply serrate, 2 glands at the base.

hiemalis (winter plumb. Can. P. w. M. ♄.) pedicels aggregated, glabrous: divisions of the calyx lanceolate: stipules setaceous, compound: leaves oblong-oval, or obovate, abruptly long-acuminate: fruit subovate.

chicasa (summer plumb, chicasaw plumb. Mx. says it was introduced. w. M. ♄.) branches very glabrous, somewhat thorny: leaves oblong-oval, acute or acuminate, minutely serrulate: buds aggregated, each about 2-flowered: pedicels very short: divisions of the glabrous calyx obtuse; fruit subglobose. The plumbs are small and yellow.

sphaerocarpon (along the maritime parts of New-England. w. M. ♄.) leaves short-oval, serrulate, generally 2 glands at the base: calyx with fine hairs: drupe spherical: nut round-oval.

maritima (C. w. M. ♄.) peduncles subsolitary: leaves ovate-oblong, acuminate, doubly-serrate. Pursh has copied in the P. *acuminata* of Mx. as a synonym, which is—branchlets glabrous: leaves oblong-oval, long acutely-acuminate: calyx glabrous: drupe long-peduncled, ovate, acuminate.

pumila (P. w. M. ♄.) umbels sessile, aggregate, few-flowered: calyx-acute: branches wand-terete: leaves narrow-lanceolate, serrate above, the under sides pale.

depressa (P. Can w. M. ♄.) umbels sessile, aggregate, few-flowered: calyxes obtuse: branches angled, depressed-prostrate: leaves wedge-lanceolate, remotely serrate, glabrous, glaucous beneath: fruit ovate.

spinosa, (english sloe. P. W. ♄.) peduncles solitary: leaves lance-oval, pubescent beneath: fruit strait: branches thorny. Said to be introduced.

susquehanna, (P. w. M. ♄.) peduncles solitary: leaves obovate-oblong, glaucous beneath, serrate, entire at the base.

cerasifera (P. w. M. ♄.) peduncles solitary: leaves oval, glabrous: fruit pendant: branches almost thornless.

Remark. Some of these species being difficult to distinguish, more English names and popular characters are desirable. But I have not determined many of them, and I have found the remarks of some modern authors to be totally erroneous in several of the species; therefore I resolved to give the essential characters without any reflections.

cerasus, (garden cherry. E. w. r. M. ♄.) umbel sub-peduncled: leaves lance-ovate, glabrous, conduplicate.

padus (bird cherry. E. w. M. ♄.) flowers racemed, lax: leaves doubly-serrate, subrugose, petioled, with two glands.

avium, (small bird cherry. E. w. ♄.) umbels sessile: leaves lance-ovate, pubescent beneath, conduplicate.

domestica (plum. E. w. M. ♄.) peduncles subsolitary: leaves lance-ovate, convolute: branches thornless. Var. *juliana* (damson plum) fruit oblong, blue. Var. *claudiana* (sweet plum, horse plum) fruit round, at first green, becoming yellowish. Var. *enucleata* (stoneless plum) the putamen obsolete.

Prunus, see ARMENIACA.

PSILOTUM, 105.

dichotomum (naked ground pine. Southern states. J. ♃.) stem naked, dichotomous: branches 3-sided. Taken from the genus Lycopodium.

PTERIS, 102.

aquilina (common brake. O. Ju. ♃.) frond pinnate-3-parted; barren branches doubly pinnate, with leafets lance-linear, obtuse, pinnatifid, toothed; fertile branches pinnate, with leafets pinnatifid, divisions acutish—all ciliate.

atropurpurea (rock brake. C. W. P. Ju. ♃.) frond pinnate; lower leafets lanceolate, obtuse, ternate or pinnate; at the base obtusely truncate or subcordate. Four miles north of Williams College, on the Pownal road, this plant grows abundantly in the clefts of the rocks. It is from three to 6 inches high, bluish green, leaves stiff. In ripening, the marginal involucre unrols, and the capsules on opposite sides meet; so that it exhibits the generic character of the Acrostichum. Stipe dark purple.

gracilis, (Can. Ju. ♃.) frond pinnate; leafets lanceolate, obtuse, alternate, sessile, lower ones pinnatifid: fertile ones entire, barren ones crenate, round-obtuse. About 4 inches high.

caudata (P. Au. 4.) frond 3-parted-pinnate : barren branches doubly-pinnate, leafets linear, elongated, obtuse, entire, lower ones doubly-pinnatifid ; fertile branches pinnate, leafets remotish below, at the base pinnatifid-toothed.

Pulmonaria, 36.

officinalis (lung-wort. E. b. M. 4.) radical leaves heart-ovate, hirsute : flowers racemed.

parviflora (Can. New-England. b. Ju. 4.) stem diffuse, procumbent, glabrous : leaves oval-spatulate, fleshy : peduncles lateral, one-flowered.

virginica (P. b. M. 4.) calyx abbreviated, glabrous : leaves ovate : stem erect : flowers subpanicled, terminal.

sibirica (Can. J. 4.) calyx abbreviated : radical leaves cordate.

Punica, 62.

granatum (pomegranite. E. h.) leaves lanceolate : stem woody.

Pycnanthemum, 68.

incanum (wild basil, mountain mint. O. w. r. Ju. 4.) leaves oblong-ovate, acute, subserrate, white downy : flowers in compound heads, lateral ones peduncled : bracts setaceous. About 3 feet high.

aristatum (O. w. Ju. 4.) leaves lance-ovate, subserrate, short-petioled, whitish : heads sessile : bracts awned.

Pyrethrum, 85.

serotinum (North America. W. Oc. 4.) leaves

lanceolate ; lower ones serrate at the apex, upper ones entire : branches corymbed.

PYROLA, 56.

rotundifolia (shin-leaf, pear-leaf wintergreen. O. w. J. 4.) leaves round or round-obovate, obsoletely serrulate : spike with the flowers reversed : pistil declined ; stigma round, with 5 tubercles.

secunda (one-sided shin-leaf. O. g-w. Ju. 4.) leaves round-ovate, acute, serrate : spike with 1-sided flowers : pistil strait: stigma peltate, gibbous.

uniflora (A. Can. J. 4.) leaves suborbicular, serrate : scape 1-flowered : style strait. Very abundant near Tracy's swamp, three miles west of Albany.

minor (W. P. Plainfield, Mass. w-r. Ju. 4.) leaves round-oval, serrulate : scape subnaked : spike with flowers reversed : pistil strait.

asarifolia (P. Can. g-y. Ju. 4.) leaves reniform : scape remotely furnished with scales, sometimes convolute and sheathing : pistil declined. On mountains.

Pyrola, see Chimaphila.

Remark. Dr. Smith, President of the Linnean society at London, says ; there is no diversity in the habit to justify the establishment of the genus Chimaphila. Those of us, who live among so many species of both genera, growing in their native wildness, want no arguments to convince us ; that, in this instance, the greatest botanist in the world is in an error. We approve of his opposition to the modern rage for innovation ; but in this case, no effort of the fancy can make out a family likeness between the stiff, strong, upright, narrow-leaved *maculata*, and the broad, flabby-leaved *rotundifolia* and its associates.

PYRUS, 62.

communis (pear. E. w-r. M. ♄.) leaves ovate, serrate, (rarely entire) peduncles corymbed. Var. *pyraster* (dwarf) fruit very small and acid. Var. *falerna* (bergamot) fruit orbicular, apple-form. Var. *pompeiana* (good christian.) Var. *favonia* (musk-pear.) Var. *liqescens* (butter pear.) Var. *rufescens* (russet pear.) Var. *pyramidalis* (leg pear.) These five last varieties are distinguished more by their flavor, than by any external marks.

malus (apple. E. w-r. M. ♄.) flowers in sessile umbels: leaves ovate-oblong, acuminate, serrate, glabrous: claws of the petals shorter than the calyx: styles glabrous. Var. *sylvestris* (wild apple) leaves ovate, serrate; fruit small, austere. Var. *prasomila* (pippin.) Var. *castanea* (chesnut apple.) Var. *apiosa* (ape apple) fruit small, round, red, pleasant-tasted. Var. *cavillea* (cornered apple) leaves broad-ovate, downy beneath: fruit angled.

cydonia (quince. E. w. J. ♄.) flowers solitary: fruit tomentose: leaves ovate, entire. Var. *lusitanica*, leaves very broad.

Remark. The varieties into which the above species have been extended by culture, are very numerous. I have given those only, which are set down by Persoon, as the most distinct.

coronaria (crab apple. Y. C. P. w-r. M. ♄.) leaves broad-oval, at the base rounded, subangled or sublobed, serrate, smooth: peduncles corymbed. Flowers sweet scented.

angustifolia (P. M ♄.) leaves lance-oblong, at the base acute: slightly crenate-toothed shining: peduncles corymbed. Fruit very small.

Pyrus, See Aronia.

Pyxidanthera, 39.

barbulata (box-flower. P. New-Jersey. Whitehills. w. J. ♄.) leaves wedge-lanceolate, acute, at the base within hairy or bearded : anthers beaked at the base.

Q.

Quercus, 94.

1. *Fruit subsessile ; leaves mucronate with a bristle-form awn* (excepting virens) *entire.* Fructification biennial.

phellos (willow oak. P. New-Jersey. M. ♄.) leaves lance-linear, tapering to both ends, entire, glabrous, mucronate : calyx saucer-form : acorn roundish.

virens (live oak. Southern states. M. ♄.) leaves perennial, coriaceous, oblong-oval, entire, revolute at the margin, at the base obtuse, at the apex acute, awnless, stellate pubescent beneath : fruit pedicelled : calyx turbinate, scales abbreviated ; acorn oblong. 40 or 50 feet high, very branching.

imbricaria (shingle oak, laurel oak. P. M. ♄.) leaves oblong, acute at both ends, mucronate, entire, shining, pubescent beneath : calyx saucer-form, scales broad-ovate : acorn subglobose. 40 or 50 feet high.

2. *Fruit subsessile ; leaves mucronate with a bristle form awn, toothed or lobed.* Fructification biennial.

heterophylla (burrier's oak. M. ♄.) leaves long-petioled lance-ovate or oblong, entire or unequally coarse-toothed : calyx hemispheric ;

acorn subglobose. Pursh says, there is but one individual of this species known in the world, which is now growing on the Bartram plantation near Philadelphia.

triloba (downy black oak. P. New-Jersey. M. ♄.) leaves wedge-oblong, acute at the base, sub-3-lobed at the apex; lobes equal in breadth, mucronate, middle lobe longest, downy beneath: calyx saucer-form; acorn compressed-globose. 20 to 40 feet high.

nigra (barren oak, black jack. P. New-Jersey. M. ♄.) leaves coriaceous, wedge-form, subcordate at the base, spread and retuse-3-lobed at the apex, in the young state it is mucronate, glabrous above, mealy rust beneath: calyx turbinate, scales obtuse, scarious; acorn short-ovate. Small.

tinctoria (quercitron oak, black oak. O. M. ♄.) leaves obovate oblong, a little sinuate, pubescent beneath; lobes oblong, obtuse, obtusely denticulate, setaceous-mucronate: calyx saucer-form; acorn depressed-globose.

discolor (false red oak. O. M. ♄.) leaves oblong, sinuate-pinnatifid, pubescent beneath and on both sides when young; lobes oblong, toothed, setaceous-mucronate: calyx turbinate; acorn ovate.

coccinea (scarlet oak. O. M. ♄.) leaves long-petioled, oblong, deeply sinuate, glabrous; lobes divaricate, toothed, acute, setaceous-mucronate: calyx turbinate, marked with scales; acorn short-ovate. This, the last, and the next species, are usually called red oak by farmers. And it requires some attention for the botanist to distinguish them. The leaves of this species become reddish and even scarlet in autumn.

rubra (red oak. O. M. ♄.) leaves long-petioled, oblong, glabrous, obtusely sinuate; lobes acutish, toothed, setaceous-mucronate: calyx saucerform, smoothish: acorn subovate, turgid.

falcata (spanish oak. P. New-Jersey. M. ♄.) leaves long-petioled, at the base obtuse, downy beneath, 3-lobed or sinuate; lobes subfalcate, setaceous-mucronate, terminal one elongated: calyx bowl-form; acorn globose. Large tree.

palustris (pin oak. Catskill, New-England. P. C. M. ♄.) leaves long-petioled, oblong, deeply sinuate, glabrous, axils of the veins villose beneath; lobes divaricate, toothed, acute, setaceous-mucronate: calyx saucer-form, smooth; acorn subglobose. Generally grows in wet places. The small limbs along the body of the tree generally die as the tree advances, which gives it the appearance of having pins or trunnels driven into it.

ilicifolia (scrub oak. O. M. ♄.) leaves long-petioled, wedge-obovate, 4 or 5-lobed, margin entire, whitish downy beneath; lobes setaceous-mucronate: calyx subturbinate: acorn sub-globose. A low shrub.

3. *Fruit peduncled; leaves without awns, lobed.*

Fructification annual.

stellata (iron oak, post oak. Y. P. Catskill. M. ♄.) leaves oblong, sinuate, wedge-form at the base, pubescent beneath; lobes obtuse, upper one dilated-2-lobed (often the lobes are so arranged in the young plants, as to form a cross-form or stellate leaf) calyx hemispheric; acorn oval.

macrocarpa (over-cup oak. P. M. ♄.) leaves downy beneath, deeply lyrate-sinuate-lobed; lobes obtuse, repand, upper ones dilated: calyx bowl-form, upper scales setose; acorn turgid, ovate, large. A large tree.

olivaeformis (mossy-cup oak. P. New-York. M. ♄.) leaves oblong, glabrous, glaucous beneath, deeply and unequally sinuate-pinnatifid: calyx

deeply bowl-form with locks above (superne crinita) acorn oval-ovate. Large tree.

alba (white oak. O. M. ♄.) leaves oblong, sinuate-pinnatifid, pubescent beneath; lobes sublinear, obtuse, entire, narrowed at their bases (particularly on full grown trees) fruit peduncled: calyx somewhat bowlform, tubercled, flattened at the base; acorn ovate. The most useful timber tree in America.

4. *Fruit peduncled; leaves without awns, toothed, not lobed.*

Fructification annual.

prinus (swamp chesnut oak. P. M. ♄.) leaves long-petioled, obovate, acute, pubescent beneath, coarsely toothed: teeth about equal, spread, callous at the apex: calyx bowl-form, tapering at the base; acorn ovate, large, sweet tasted. Large tree.

prinoides (dwarf chesnut oak, chinquapin. P. M. ♄.) leaves short-petioled, obovate, at the base acute, coarsely toothed, glaucous beneath; teeth nearly equal, spread, callous at the apex: calyx hemispherical; acorn ovate. A low shrub.

montana, (rock oak, chesnut oak, mountain oak. O. M. ♄.) leaves moderately petioled, broad-obovate, oblong, white downy beneath, shining above; coarsely toothed, at the base obtuse, oblique; teeth subequal, very obtuse, short: fruit in pairs, short-peduncled: calyx hemispheric, scales rugose tubercled: acorn ovate.

castanea (yellow oak. P. A. Catskill. New-England. M. ♄.) leaves long-petioled, lance-oblong, obtuse at the base, acuminate, downy beneath, coarsely toothed; teeth subequal, spread, acute, callous at the apex: calyx hemispheric; acorn globular-ovate. Large tree. The bark is used for dying yellow.

bicolor (swamp white oak. P. M. ½.) leaves short-petioled, oblong-obovate, white-downy beneath, coarsely toothed, entire at the base; teeth unequal, spread, acutish, callous at the apex: fruit in pairs, long-peduncled; the peduncle terminating in a bristle: calyx hemispheric: acorn oblong-ovate. Large tree.

Remark. The localities of the oaks have not been well settled, to the north of Pennsylvania. Therefore students may expect to find several of the species, credited to Pennsylvania only, in the Northern states. This remark will apply to several other genera.

Queria, 33.

canadensis (fork chickweed. Y. W. H. P. A. Ju. 2.) stem dichotomous, very branching, spread: leaves lanceolate, glabrous, erect. About 6 or 8 inches high, very slender and branching.—Flowers very small, stamens from 2 to 5. Anychia dichotoma. Mx.

R.

Ranunculus, 67.

acris (crow-foot, butter-cup. O. y. M. 2.) hairs close-pressed: leaves 3-parted-many-cleft, upper ones linear: peduncles terete: calyx spreading.

abortivus (O. y. M. 2.) glabrous: stem striate, naked below: radical leaves heart-reniform, obtusely crenate; cauline ones petioled, ternate, angled, upper ones sessile: branches sub-3-flowers. Flowers small.

repens (H. W. P. C. y. M. 2.) hirsute: leaves ternate, 3-cleft, gashed: creeping shoots are sent off in the summer: peduncles sulcate: calyx spreading.

recurvatus (A. C. y-w. J. 2.) pubescent: leaves

3-lobed; lobes wedgeform at the base, gashed at the apex, acute: stem many-flowered: calyx and corol recurved: petals linear. Flowers small.

fasciculāris (H. A. P. C. y. M. 4.) leaves subpubescent, radical ones long-peduncled, ternate or subpinnate; leafets 3-lobed, the terminal one deeply 3-cleft: calyx spreading, hairy underneath; petals longer than the calyx: root fascicled. See Big. Florula Bost.

fluviatilis (river crowfoot. O. w-y. M. 4.) stem submersed: leaves all capillary, dichotomous. The whole under water, excepting the fructification while the corol is expanded.

aquatilis (water crowfoot. P. Can. w. J. 4.) the submersed leaves capillary; those above water peltate.

delphinifolius (C. y. 4.) submersed leaves very finely divided, divisions dichotomous; those above water coarser; calyx expanding, smooth, concave: petals orbicular, entire, twice as long as the calyx; nectary orbicular, bifid. A new species by Dr. Torrey; though he suspects it may be a variety of the fluviatilis.

bulbosus (A. H. P. y. M. 4.) very hirsute: leaves ternate, 3-cleft, gashed and toothed: stem erect, many-flowered: peduncles sulcate: calyx reflexed: root bulbose.

hirsutus (W. P. Vermont. y. Ju. 4.) hirsute: leaves ternate, gash-lobed: stem erect, many-flowered: peduncles sulcate: calyx reflexed, acuminate: seeds tubercled: root fibrous. R. philonotis.

flammula (spearwort. A. C. P. y. 4.) glabrous: stem declined: leaves narrow-lanceolate, acute, entire and denticulate, lower ones petioled: peduncles terminal, axillary, 1-flowered: calyx subreflexed. Flowers small.

sceleratus (celery crowfoot. O. y. J. 4.) glabrous: lower leaves palmate; upper ones sessile, digitate: fruit oblong.

pensylvanicus (C. Y. P. y. Ju. ♃.) pilose, erect, branching : leaves ternate, 3-cleft, gashed, hairy beneath ; peduncles terete : calyx reflexed : petals about equalling the calyx. Flowers large.

pusillus (C. y. Ju. ♃.) glabrous : leaves petioled : lower ones ovate, toothed ; upper ones lance-linear, toothed at the apex, the very uppermost ones linear, bract-like : peduncles alternate, solitary, 1-flowered.

lingua (great spearwort. P. y. Ju. ♃.) hairs close-pressed : leaves lanceolate, subdenticulate, acuminate, subsessile ; stem erect, many-flowered.

reptans (dwarf spearwort. P. y. Ju. ♃.) leaves linear entire : stem creeping. Perhaps a variety of the flammula.

marylandicus (P. w-y. M. ♃.) pubescent : stem simple, subnaked : radical leaves ternate ; leafets 3-lobed, lobes acute gashed : calyx reflexed.

hispidus (P. w-y. J. ♃.) very hirsute, erect : leaves ternate ; leafets acutely lobed ; stem naked below the first peduncle, few-flowered : calyx close-pressed.

cymbalaria (Onondaga. w-y. J. ♃.) glabrous, very small, filiform, creeping, rooting at the joints : leaves heart-reniform, obtusely 5-toothed : radical peduncles solitary, mostly 2-flowered : petals linear : fruit oblong.

filiformis (P. Can. w-y. J. ♃.) glabrous, small : stem filiform, creeping, geniculate, with the joints 1-flowered : leaves linear-subulate, obtuse.

nitidus (New-Jersey. P. w. Ju. ♃.) very glabrous : stem fistulous : radical leaves round-reniform, obtusely crenate, cauline ones sessile, digitate ; leafets gashed, divisions obtuse : seeds subglobose, very glabrous.

auricomus (P. y. M. ♃.) pubescent : radical leaves reniform, 3-parted, gash-crenate, cau-

line ones sessile, digitate, linear: stem many-flowered: calyx coloured, spreading.

lanuginosus (P. y. J. 4.) hirsute: leaves 3-cleft, lobed, toothed, all over silky: peduncles elongated, terete: calyx spreading.

saniculaefolius (sanicle-crowfoot. V. C.) very hirsute: leaves all 3-parted; divisions gash-serrate: peduncles short, bearing 2 or 3 small flowers: calyx reflexed, hirsute: leafets lanceolate, acute, longer than the petals. Muhl. credits this plant to Delaware only. Last summer Dr. Torrey found it near New-York, and drew this description from living specimens. Dr. Beck found it also growing near Albany.

Raphanus, 75.

sativus (garden-radish. E. w. J. ☺.) leaves lyrate: silique terete, torose, 2-celled. There are several varieties of this species—one has a fusiform, another a globose, another a black root.

raphanistrum (wild radish, charlock. N. y. Au.) leaves lyrate: siliques terete, jointed, smooth, 1-celled. Before the silique is mature, it is generally 2-celled and not jointed. It may have been introduced; but it is now growing wild in all the middle and southern towns of the western counties of Massachusetts.

Reseda, 61.

odorata (mignonette. E. w-y. Ju. ☺.) leaves entire, and 3-lobed: calyx equalling the corol.

luteola (dyer's weed. Y. y. Au. ☺) leaves lanceolate, undulate, entire, a tooth on each side of the base: calyx 4-cleft: flowers spiked. Prof. Ives found this plant growing near New-Haven, in situations and with habits, which induced him to suspect it to be indigenous.

Rhamnus, 41.

alnifolius (dwarf alder. O. w-g. M. ♄.) unarmed: leaves oval, acuminate, serrulate, pubescent at the nerves beneath: peduncles aggregate, 1-flowered: calyx acute: fruit turbinate. Berries black. Pursh calls this the franguloides, after Mx. and gives this name to a species found up the Missouri.

catharticus (buckthorn. E. ♄.) thorns terminal: flowers 4-cleft, dioecious: leaves ovate, serrate.

Rheum, 55.

palmatum (rhubarb. E. J. ♃.) leaves palmate, acuminate. From China.

tataricum (pie rhubarb. E. J. ♃.) leaves heart-ovate, entire, flat, glabrous: petioles semiterete, angled: branches of the panicle sulcate. The radical leaves very large. From Tartary.

Rhexia, 54.

virginica (meadow beauty, deer-grass. Y. C. H. P. p. Ju. ♃.) stem wing-angled, with scattered hairs: leaves sessile, lance-oval, denticulate, setaceous, ciliate-errate. About 8 inches high.

mariana (New-Jersey. w-r. Ju. ♃.) stem and leaves very hirsute: leaves subpetioled, lance-oval or lance-linear: calyx smoothish, tubular, long.

Rhinanthus, 71.

crista-galli (yellow rattle. yellow coxcomb. Can. y. J. ☉.) upper lip of the corol emarginate, 2-toothed, middle division of the under lip very short.

Rhododendon, 57.

maximum (wild rose-bay, H. C. r. Ju. ♄.) leaves oblong, glabrous, paler beneath; umbels terminal, dense: corols sub-bellform; petals rounded. A small tree.

ponticum (rose bay. E. p. ♄.) leaves oblong, glabrous, both sides coloured alike: corymbs terminal: corol bell-wheelform; petals lanceolate.

Rhodora, 56.

canadensis (false honey-suckle, rhodora. H. Can. Granby, Mass. b. r. M. ♄.) leaves oval, entire, glaucous-pubescent beneath: flowers in terminal umbels. About 2 feet high.

Rhus, 47.

typhinum (sumach. O. y-g. Ju. ♄.) branches and petioles very villose: leaves pinnate, many-paired, leafets lance-oblong, serrate, somewhat downy beneath. Berries red and very sour.

glabrum (sleek sumach. O. g. r. Ju. ♄.) branches, petioles and leaves glabrous: leaves pinnate, many-paired; leafets lance-oblong, serrate, whitish beneath: fruit silky. The leaves of both these species are used for tanning morocco leather. Berries red and sour.

copallinum (wing-rib sumach, mountain sumach. O. y-g. Ju. ♄.) branches punctate: leaves pinnate, in about 5 or 6 pairs, with the main petiole joint-winged; leafets lance-oval entire: panicle leafy, branches sub-sessile: flowers dioecious. Berries red.

vernix (poison sumach. O. y-g. Ju. ♄.) very glabrous: leaves pinnate, many-paired; leafets oval, abruptly acuminate, entire: panicle lax: dioecious: fruit glabrous. Berries

green, at length whitish. Panicle few-flowered compared with the preceding species. Very poisonous. See Bigelow's Med. Bot.

toxicodendron (poison vine, poison ash. O. g. Ju. ♄.) rooting: leaves ternate: leafets oval, entire or sinuate-crenate: racemes on the branches and axillary, sessile: dioecious. Var. *radicans* (poison ivy) stem climbing and rooting; leafets broad, entire or with scattered teeth. Var. *quercifolium* (poison oak) erect, low: leafets variously sinuate-lobed. Var. *microcarpon*, leafets oblong-oval, long-acuminate, subrhombic: fruit very small. The sap of this species is an excellent marking ink for linen.

aromaticum (P. y. M. ♄.) a very little woody: flowers amentaceous, naked: leaves ternate: leafets rhombic-oval, toothed, pubescent beneath. Dioecious.

Rhynchospora, 29.

sparsa (false bog-rush. P. Ju. ♃.) corymbs diffuse, axillary, compound: terminal ones decompound: peduncles capillary: seeds longer than the beaks.

glomerata (P. J. ♃.) spikes corymbed-fascicled, remote in pairs: culm obtuse-angled: leaves linear.

alba (P. H. Ju. ♃.) spikes corymbed-fascicled: culm and leaves setaceous.

ciliata (P. ♃.) spikes corymbed-fascicled, terminal: bracts and leaves obtusish, ciliate.

Ribes, 42.

1. *Currant-like. Flowers racemed.*

rubrum (currant. E. g. M. ♄.) unarmed: racemes glabrous, nodding: corol flat; petals obcordate: leaves obtusely 5-lobed: stem erect. Berries red.

nigrum (black currant. E. g. M. ♄.) unarmed : leaves punctate beneath : racemes lax : flowers bellform bracts shorter than the pedicels. Berries black.

albinervium (Can. Catskill Mt. g-y. M. ♄.) unarmed : leaves abbreviated, acutely lobed, smoothish, nerves white : racemes recurved ; berry glabrous. Berries red.

trifidum (P. Can. y-g. M. ♄.) unarmed : leaves moderately lobed, glabrous above, pubescent beneath : racemes lax, pubescent : flowers flattish : divisions of the calyx about 3-cleft : petals spatulate, obtuse : berries hirsute. Berries red.

ringens (Can. P. M. ♄.) unarmed : branches strait : leaves acutely lobed and toothed, reticulate-rugose, pubescent beneath : racemes lax, becoming stiffly erect : berry subhispid. Berries red, erect.

glandulosum (O. r-y. M. ♄.) unarmed : branches reclined-prostrate : leaves lobed, smoothish, younger ones pubescent : racemes suberect : petals deltoid : bracts minute : berry hispid. Most of the plant, particularly the calyx, covered with glandular hairs.

recurvatum (P. y. A. ♄.) unarmed : branches recurved : leaves broadish, acutely lobed, pubescent, glandular-punctate : racemes reflexed : calyx tubular, glabrous.

floridum (wild black-currant. O. M. ♄.) unarmed : leaves punctate both sides : racemes pendant : calyx cylindric : bracts longer than the pedicels.

2. *Gooseberry-like. Peduncles mostly few-flowered ; rarely subracemed.*

grossularia (english gooseberry E. g. M. ♄.) branches prickly : petioles hairy : bracts 2-leaved : berry glabrous or hirsute.

uva-crispa (smooth gooseberry. E. g. M. ♄.)

branches prickly : berry glabrous ; pedicels with 1-leaved bracts. Perhaps a variety of grossularia.

triflorum (wild gooseberry. O. g. M. ♄.) spine subaxillary : leaves glabrous, 3 to 5-lobed, gash-toothed : peduncles sub-3-flowered with the pedicels elongated : bracts very short : petals spatulate, undulate : style hirsute, half 2 or 3-cleft, exsert : berry glabrous. Berries pale red.

hirtellum (W. Troy. Can. P. g. M. ♄.) spines very small, subaxillary : branches subhispid : leaves small, semitrifid ; lobes subdentate : peduncles 1-flowered : berry glabrous. Berries red.

oxyacanthoides (C. P. Can. M. ♄.) the large and subsolitary prickles near the buds, the smaller ones scattered : leaves glabrous, with toothed lobes : peduncles short, about 2-flowered : berries glabrous.

gracile (P. W ? C. M. ♄.) little spines subaxillary : leaves petioled, slender, pubescent both sides ; lobes acutely gash-toothed : peduncles capillary, about 2-flowered : calyx bell-tubular : berries glabrous. Berries bluish purple.

lacustris (Can. P. g-y. M. ♄.) spines manyfold, subaxillary : stem every where aculeate-hispid : leaves lobed beyond the middle : petioles villose : berries somewhat racemed, hispid.

conobasti (Can. P. Catskill Mt. g. M. ♄.) prickles in pairs : leaves short-lobed, gash-toothed, with soft pubescence : racemes nodding, few-flowered : calyx erect, bellform : berry prickly. Berries dark brown.

Riccia, 110.

natans (floating liverwort. W. Ju.) fronds obcordate, with apexes meeting, so as to form the sectors of circles, flat : radicles beneath flat.

Very abundant in a standing water one mile northwest of Williams College, near the north bank of the Hoosack. It floats on the water, with its short flat roots extending a little distance into it. Colour sea-green. Each congeries of floating fronds hardly an inch in diameter. Channels run on their backs, like midribs in leaves.

fluitans (forkstems. W. J.) fronds repeatedly forked, linear, convex or subcylindric, smooth, reticulate, obtuse and cloven at the tips. Very plenty in stagnant water among the Lemna in Mr. Noble's field near Williams College. These plants appear like the branching stems of plants, without any roots. They are pellucid, very cellular, about 2 or 3 inches long.

glauca, frond many parted, forked, cloven at the top, grooved, obtuse.

Ricinus, 96.

communis (caster-oil plant, palma christi. E.☺.) leaves peltate, palmate ; lobes lanceolate, serrate : stem with hoary mealiness.

Rivina, 36.

laevis (rough-seed. P. r. S. ½.) racemes simple: leaves ovate, acuminate, glabrous, flat: stem terete. Margins of the leaves often purple.

Robinia, 79.

pseudo-acacia (locust tree, false acacia. Can. P. w. M. ♄) leaves pinnate, with a terminal leafet : stipules thorny, or a thorn : racemes pendant: teeth of the calyx awned : legumes smooth. Cultivated every where.

viscosa (clammy locust. Southern states. Ju. ½.) racemes with 1-flowered pedicels : leaves

pinnate, with a terminal leafet : branches and legumes with viscous glands : calyx acuminate. Racemes axillary, dense-flowered, erect; flowers approaching from white to red.

hispida (rose locust. Southern states. P. ♄.) racemes axillary, suberect : calyx acuminate : stem mostly unarmed ; most of the plant hispid : leaves pinnate, with a terminal leafet; leafets round-oval, mucronate, sometimes alternate. An elegant shrub.

caragana (siberian locust. E.) leaves abruptly pinnate : calyx somewhat bellform : stigma glabrous, truncate : legume cylindric. There are several varieties of this plant which have been divided into species. See 2d Persoon, page 312.

ROSA, 63.

corymbosa (swamp rose. O. r-w. Ju. ♄.) germs (permanent calyxes) globose ; germs and peduncles a little hispid, or glabrous : petioles hairy and a little prickly : stem glabrous : prickles stipular, subuncinate : leafets 5 or 7, lance-oblong, acute, sharply serrate, glaucous beneath : flowers solitary or corymbed. R. carolina. From 3 to 6 feet high. Very variable. Dr. Bigelow sent three specimens to the greatest botanist in Europe, which were all taken from different parts of the same plant. He received an answer making two of the specimens different described species, and the third one a new species.

parviflora (wild rose. O. r. w. J. ♄.) germs depressed-globose ; germs and peduncles hispid : petioles pubescent, subaculeate : stem glabrous : prickles stipular, strait : leafets lance-oval, simply serrate, glabrous : flowers somewhat in pairs. Very variable. Grows mostly on dry land.

rubiginosa (sweet briar. C. Y. P. N. r. J. ♄.) germs ovate: peduncles and petioles glandular-hispid; petioles somewhat prickly: stem glabrous; prickles scattered, strait, slender; leafets (5 or 7) ovate, serrate, scarcely glandular-hairy beneath: branchlets 1-flowered: divisions of the calyx entire. R. suaveolens. The leaves have often a rusty appearance beneath.

lucida (P. r. Ju. ♄.) germs depressed-globose: germs and peduncles subhispid: petioles glabrous, subaculeate: stem glabrous; prickles stipular, strait: leafets lance-ovate, obtusish, coarsely serrate, glabrous, shining: flowers somewhat in pairs: divisions of the calyx entire. 4 to 6 feet high.

gamella (P. New-England. r. Ju. ♄.) germs depressed-globose: germs and peduncles glabrous: flowers somewhat in pairs: leaves oblong, acute, opake; petioles and veins pubescent beneath: prickles uncinate, the cauline ones in pairs below the axils.

setigera (bristly rose. Southern states. J. ♄.) germs globose: petioles and nerves prickly: branches glabrous: prickles in pairs and scattered: leafets (3 or 5) acuminate, glabrous: divisions of the calyx somewhat winged-bristle-bearing. 5 to 8 feet high.

pendulina (thornless rose. North America? E? r. J. ♄.) unarmed: germs oblong: peduncles and petioles hispid: stem and branches glabrous: fruit pendant.

nitida (P. r. J. ♄.) germs globose; the whole calyx, peduncles and branches hispid; petioles a little hairy, unarmed: leafets (7) lance-oblong, very glabrous and shining both sides.

canina (dog-rose. New-Jersey. ♄.) germs ovate; germs and peduncles glabrous; stem and petioles prickly: leaves ovate, glabrous.

gallica (french rose, common rose. E. r. J. ♄.) germs ovate; germs and peduncles hispid:

stem and petioles hispid-prickly. Sometimes the colours are variegated.

damascena (damask rose. E. w. r. J. ♄.) calyx half-pinnate: germ ovate, turgid (thickened near its top) bristly: stem and petioles prickly; leafets ovate, pointed, downy beneath.

muscosa (moss rose. E. r. Au. ♄.) germs ovate: calyx, peduncles, petioles and branches hispid, glandular-viscid (mossy-like) spines of the branches scattered, strait.

moschata (musk rose. E. ♄.) germs ovate; germs and peduncles villose: stem and petioles prickly: leafets oblong, acuminate, glabrous: panicles many-flowered.

burgundiaca (burgundy rose. E. ♄.) germs subglobose; germs and peduncles hispid: leafets ovate, pubescent beneath: corol small, full, fleshy-white, disk obscure. Var. *provincialis*, has scattered reflexed prickles on the branches, and glandular serratures.

semperflorens (monthly rose. E, ♄.) germs ovate-oblong, tapering to both ends: germs and peduncles hispid: stem prickly: flowers in erect corymbs. Resembles damascena.

alba (white rose. E. w. J. ♄.) germs ovate, glabrous or hispid: stem and petioles prickly: leafets ovate, villose beneath.

pimpinellifolia (burnet rose. E. r. ♄.) germs globose; germs and peduncles glabrous: stem with scattered strait prickles: leaves obtuse; petioles scabrous. Very small.

centifolia (hundred leaved rose. E. ♄.) germs ovate; germs and peduncles hispid: stem hispid, prickly: leaves pubescent beneath; petioles unarmed.

cinnamomea (cinnamon rose. E. ♄.) germs globose; germs and peduncles glabrous: stem with stipular prickles: petioles somewhat unarmed: leafets oblong. R. majalis. Stem brown-cinnamon colour.

multiflora (japan rose. E. ♄.) germs ovate; germs and peduncles unarmed, villose: stem and petioles prickly. Branches generally purple, leafets ovate, flowers small, panicled.

spinosissima (scotch rose. E. ♄.) germs globose, glabrous: peduncles hispid: stem and petioles very hispid. Var. *scotica*, is smaller.

parvifolia (small-leaf rose. E. ♄.) small: germs ovate, subglabrous: peduncles glandular: stem and petioles with slender prickles: leafets rugose, a little villose beneath, ovate, glandular-serrate.

Remark. Thirteen exotic species of the rose may be considered disproportioned to other parts of this Manual. But as all these species are cultivated in the interior of Massachusetts, and most of them in Albany and Troy, descriptions of them may not be unacceptable. These species were mostly analyzed in the living state, and obligingly furnished for this work by Miss Henshaw, of Northampton.

Rosmarinus, 27.

officinalis (rosemary. E. ♄.) leaves some green both sides, others whitish beneath, linear, margins revolute.

Rubia, 35.

tinctoria (madder. E.) leaves lanceolate, about in sixes: stem prickly, climbing. Var. *sylvestris*, lower leaves in sixes, upper ones in fours or in pairs.

Rubus, 63.

ideus (garden raspberry. E. w. M. ♄.) leaves quinate-pinnate and ternate; leafets rhomb-ovate, acuminate, downy beneath; petioles

channelled : stem prickly-hispid ; flowers subpanicled. A variety has a smooth stem.

strigosus (red raspberry. O. w. J. ♄.) unarmed : rigidly hispid : leafets 3, or pinnate-quinate, oval, at the base obtuse, acuminate, marked with lines and white-downy beneath : calyx acuminate : flowers axillary, solitary at the ends of the branches : peduncles and calyx hispid. Berries red, sweet, acines very slightly attached.

odoratus (flowering raspberry. O. r. J. ♄.) unarmed, erect, viscid-hispid : leaves simple, acutely 3 or 5-lobed : corymbs terminal, spreading : calyx appendiculate ; petals suborbiculate. Flowers large, berries rather dry and thin.

occidentalis (black raspberry. O. w. J. ♄.) branches and petioles glaucous and prickly : leaves ternate, oval, acuminate, sublobate and doubly serrate, white downy beneath ; petioles terete : prickles recurved.

villosus (high blackberry. O. w. J. ♄.) pubescent, hispid and prickly : leaves digitate, in threes or fives ; leafets ovate-oblong, acuminate, serrate, hairy both sides : stem and petioles prickly : calyx short, acuminate : racemes lax, pedicels solitary.

trivialis (creeping blackberry, dew-berry. O. w. J. ♄.) sarmentose-procumbent : petioles and peduncles aculeate-hispid with the prickles recurved : stipules subulate : leaves ternate or quinate, oblong-oval, acute, unequally serrate, subpubescent : pedicels solitary, elongated : petals obovate, thrice as long as the calyx.—Var. *flagellaris*, has orbicular petals and small smooth leaves.

saxatilis (brier herb, rock blackberry. O. w. J. 4.) herbaceous, pubescent : stem creeping : leaves ternate, rhombic, acute, gash-toothed, naked, terminal one petioled : flowers somewhat in threes ; pedicels elongated.

obovalis (C. M. 4.) stem becoming a little woody, hispid with stiff hairs: leaves ternate, round-obovate, serrate, naked: stipules setaceous: racemes subcorymbed, few-flowered: bracts ovate: pedicels elongated.

cuneifolius (P. New-Jersey. J. ½.) branches, petioles and peduncles downy, with recurved prickles: leaves digitate, in threes or fives; leafets wedge-obovate, unequally toothed above, plaited, downy beneath, margin entire, revolute: racemes terminal, panicled; pedicels divaricate nakedish.

hispidus (P. Can. w. J. ½.) sarmentose-procumbent: stem, petioles and peduncles very hispid with rigid bristles: leaves ternate, gash-serrate, naked, middle one peduncled.

canadensis (Can. New-England. J. ½.) a little glabrous: leaves digitate in tens, fives and threes; leafets lanceolate, naked both sides, sharply serrate: stem unarmed: bracts lanceolate. Stem purple.

chamaemorus (cloud-berry. Can. New-England. w. J. 4.) herbaceous, small: stem unarmed, 1-flowered, erect: leaves simple, subreniform, round-lobed: petals oblong.

acaulis (Can. J. 4.) herbaceous, small, nearly stemless, 1-flowered: leaves almost radical, ternate: leafets sessile, lateral ones somewhat trapezoidal.

Rudbeckia, 87.

laciniata (cone-flower, cone-disk sunflower. C. y. Au. 4.) lower leaves pinnate, leafets 3-lobed; upper ones ovate: egret crenate: stem glabrous. From 5 to 10 feet high.

digitata (P. y. Au. 4.) lower leaves pinnate, leafets pinnatifid: upper ones simply pinnate: top ones 3-cleft: egret crenate: stem smooth.

pinnata (P. y. Ju. 4.) leaves all pinnate; one or

more of the lower leafets 2-parted, the rest undivided: egret entire; stem furrowed, hispid.

triloba (P. y. Au. ♄.) pilose-hispid: stem paniculed; branches divaricate, many-flowered, leafy: leaves lanceolate, acuminate at both ends, serrate, lower ones 3-lobed: leafets of the calyx linear, deflexed, of the length of the rays. 4 or 5 feet high.

fulgida (P. Au. ♃.) stem hispid: branches wand-like, elongated, 1-flowered: leaves lance-oblong, denticulate, hispid, narrow at the base, subcordate: calyx leafy, about equalling the ray: disk hemispheric, with lanceolate chaff.

hirta (P. y. Ju. ♃.) very hirsute: stem wand-like, sub-ramose, 1-flowered: peduncles naked: leaves ovate-spatulate, 3-nerved, serrate, rough-haired: calyx leafy, nearly equalling the rays: disk conic, with lanceolate chaff.

purpurea (P. p. Ju. ♃.) rough: lower leaves broad-ovate, tapering to the base, remotely toothed: cauline leaves lance-ovate, acuminate at both ends, subentire: rays long, pendant, 2-cleft.

Ruellia, 72.

strepens (ruel. P. w-b. Ju. ♃.) erect, hirsute: leaves petioled, lance-ovate, entire: peduncles 1 to 3-flowered: divisions of the calyx lanceolate, hispid, half as long as the tube of the corol. Flowers large.

Rumex, 52.

crispus (dock. O. Ju. ♃.) valves of the calyx ovate, entire, all bearing grain-like appendages on their backs: leaves lanceolate, undulate, acutish.

obtusifolius (O. J. ♃.) valves toothed, one principally bearing a grain-like appendage: radical

leaves heart-oblong obtuse : stem a little scabrous.

verticillatus (Can. Troy. P. J. ♃.) valves entire, all bearing grain-like appendages : spikes (about 3) leafless, with the flowers half-whorled : leaves lanceolate : sheathing stipules cylindric.

britanicus (H. P. A. J. ♃.) valve entire, all bearing grain-like appendages : spikes of the panicle leafless : sheathing stipules obsoletely torn : leaves broad-lanceolate, flat, smooth.

sanguineus (bloody dock. P. J. ♃.) valves entire, oblong, one principally bearing the grain-like appendage : leaves heart-lanceolate.

aquaticus (water dock. P. Y. C. Ju. ♃.) valves ovate, entire, bearing obsolete grains : leaves heart-lanceolate, acute.

acutus (P. E ? ♃.) valves toothed, bearing grain-like appendages : leaves heart-oblong, acuminate.

patientia (garden dock, patience. E. ♃.) valves entire, one of them bearing a grain-like appendage : leaves lance-ovate.

Rumex, see Lapathum.

RUPPIA, 36.

maritima (tassel pondweed. P. J. ♃.) floating : leaves pectinate, obtuse : flowers spiked.

RUTA, 56.

graveolens (rue. E.) leaves more than decompound ; leafets oblong, terminal ones obovate : petals entire.

S.

Sabbatia, see Chironia.

Saccharum, 31.

officinarum (sugar cane. E.) flowers panicled, in pairs, one sessile and one pedicelled: corol 1-valved, awnless. From the East Indies originally.

Sagina, 36.

procumbens (pearlwort. Y. C. w. g. J. ♃.) stem procumbent, glabrous: petals very short.—Persoon and Smith say this species grows in barren fields, and Pursh repeats the remark. But at New-Haven it grows only in running water or very wet shady places, forming a kind of water mat. I believe I was the first who found this plant in the Northern states.—Prof. Ives then doubted my accuracy on account of its place of growth. I am now inclined to believe, that his doubts were well founded, and that this is a new species; notwithstanding it agrees with the above diagnosis.

apetala (P. J. ☉.) stem erectish, pubescent: flowers sub-apetalous. Both species have linear, glabrous, connate leaves and axillary flowers.

Sagittaria, 94.

sagittifolia (arrow-head. O. w. Ju. ♃.) leaves lanceolate, acute, sagittate; lobes lanceolate, acute, strait: scape simple: bracts and calyx lanceolate, acute. In water or very wet places.

latifolia (O. w. Ju. ♃.) leaves ovate acutish, sagittate; lobes ovate, slenderly acuminate, strait: scape simple: bracts roundish, obtuse. Var. *major*, leaves large, abruptly acute: scape subramose. Dioecious.

obtusa (P. w. J. ♃.) leaves broad-ovate, round-

obtuse, mucronate, sagittate; lobes near each other, oblong, obliquely acuminate, strait: scape simple: bracts ovate acute. Dioecious.

hastata (C. P. w. Ju. ♃.) leaves lance-oblong, gradually acute, sagittate; lobes spreading, lanceolate, long-acuminate: scape simple: bracts and calyx roundish, obtuse. Dioecious.

gracilis (P. w. Ju. ♃.) leaves linear, obtusish, 3-nerved, sagittate; lobes spreading, linear, elongated, gradually becoming slenderly acuminate: scape simple, few-flowered: bracts short, suborbiculate. Leaves very slender, about 3 inches long, including the petiole.

heterophylla (P. A. New-Jersey, Plainfield, Mass. w. Au. ♃.) leaves simple, linear and lanceolate, acute at both ends; or oval, acute, at the base ob tuse, sagittate; lobes spreading, linear: scape simple, few-flowered: pistillate flowers subsessile: bracts broad-ovate, acuminate.

lancifolia (C. w. Ju. ♃.) leaves broad-lanceolate, narrow below: scape sub-ramose: seeds flat, sabre-form, beaked.

rigida (Oswego. w. Ju. ♃.) leaves narrow-lanceolate, keeled below, rigid, very acute at both ends: scape ramose. Grows in deep water.

simplex (New-Jersey. w. Ju. ♃.) leaves lance-linear, acute, narrow below: scape simple, many-flowered: bracts and calyx round, obtuse. Dioecious.

graminea (Y. Can. P. w. Ju. ♃.) leaves linear, long, 3-nerved: scape simple, few-flowered; bracts oblong, obtuse.

acutifolia (P. w. Ju. ♃.) leaves subulate, sheathed at the base, convex on the back: scape simple, few-flowered: bracts dilated, acuminate.

natans (P. w. Ju. ♃.) leaves nodding, lance-oval, obtuse, 3-nerved, tapering to the base; lower

ones subcordate : scape simple, few-flowered : lower peduncles elongated.

Salicornia, 25.

herbacea (samphire, glasswort. Y. H. C. Au. ☉.) herbaceous, spreading : joints compressed at the apex, emarginate-bifid. Var. *virginica*, has the branches undivided and the jointed spikes very long. The fructification is very obscure ; but it may be known by its leafless nearly cylindric jointed branches. It grows in salt marshes along the sea-board. Pursh says, he has seen it at the salt springs of Onondaga. It is used for pickles and for making soda. Bigelow says, the specimens about Boston have not the emarginate-compressed apex, as expressed above.

ambigua (C. Ju. ☿. ♄.) somewhat woody, ascending, very branching.

Salix, 97.

1. *Leaves entire, or obsoletely serrate.*

candida (white willow. P. Catskill Mt. Ap. ♄.) leaves lance-linear, very long, obsoletely denticulate at the apex, pubescent above, white-downy beneath, margin revolute : stipules lanceolate about equalling the petioles : aments precede the leafing, cylindric ; scales lance-obovate, down very long.

muhlenbergiana (speckled willow. P. Ap. ♄.) leaves lanceolate, acutish, subentire, white-hairy, rugose-veiny beneath, margin revolute ; stipules lanceolate, caducous : aments precede the leafing ; scales oblong with villose margins : germs lance-ovate, silk-villose, long-pedicelled : style short, stigma 2-cleft. Scale of the ament tipped with red. 3 to 5 feet high.

tristis (mourning willow. Y. W. P. A. C. Ap. ♄.) leaves lance-linear, acute at both ends, entire, margin revolute, smoothish above, rugose-veined and downy beneath : stipules none : aments precede the leafing, oblong.

recurvata (shrub willow. P. New-Jersey. Ap. ♄.) leaves lance-obovate, acute, entire, margin glandular, glabrous, glaucous beneath, in the young state silky : stipules none : aments precede leafing, recurved ; scales black at the apex, hairs of the length of the germs : germs ovate, short-pedicelled, silky : style short, stigma 2-cleft. Probably a variety of S. rosmarinifolia.

repens (creeping willow. Whitehills. J. . ♄) creeping : leaves lance-oval, entire, acute, glabrous, somewhat silky beneath : stipules none : aments precede the leafing, ovate ; scales obovate, obtuse, hairy, sooty-yellow at the apex : germs ovate-oblong, pedicelled, pubescent : style short, stigma 2-lobed : capsules glabrous. Very small. Found on the Whitehills by Bigelow and Boot. We are indebted to these two gentlemen and Professor Peck, for most of the discoveries on this mountain, in every department of natural history.

pedicellaris (stem-berried willow. Catskill Mt. Ap. ♄.) branchlets smooth : leaves lance-obovate, acute, entire, both sides glabrous and coloured alike : stipules none : aments flower at leafing time, peduncled, glabrous ; scales oblong, scarcely pilose, but half as long as the pedicels : germs ovate-oblong, glabrous, with very long pedicels : stigma sessile, 2-cleft.

rosmarinifolia (rosemary willow. P. Ap. ♄.) leaves strait, lance-linear, acute at both ends, entire, subglandular at the margin, caducous-pubescent above, silky beneath : stipules narrow-lanceolate, erect : aments precede the leafing, ovate, recurved : scales oblong, ob-

tuse, ciliate : germs pedicelled, lanceolate, villose : stigma subsessile, 2-cleft. About 3 feet high.

fuscata (sooty willow. P. C. Ap. ♄.) leaves lance-obovate, acute, glabrous, subserrate, glaucous beneath, in the young state pubescent : stipules very narrow : aments precede the leafing, nodding ; scales obtuse, scarcely hairy within : germs short-pedicelled, ovate, silky : stigma sessile, 2-lobed.

2. *Leaves remotely and obtusely serrate.*

conifera (rose willow, cone-gall willow. O. Ap. ♄.) leaves lance-oblong, remotely serrate, acute, glabrous above, flat and downy beneath, the first year's growth glabrous : stipules lunulate, subdentate : aments precede the leafing : scales lanceolate, obtuse, villose : germs pedicelled, lanceolate, silky : style 2-cleft : stigma 2-lobed. The scaly cones are mere excrescences or galls, caused by the stings of insects.

myricoides (gale-leaf willow. P. A. New-England. Ap. ♄.) leaves lance-oblong, acute, 2 glands at the base, glabrous, glaucous beneath : stipules ovate, acute, glandular-serrate : aments flower at leafing time, villose, leafy at the base ; scales lanceolate, obtuse, villose, dark-coloured : germs long-pedicelled, lanceolate, glabrous : style 2-cleft ; stigma 2-cleft.

prinoides (P. Ap. ♄.) leaves oval-oblong, acute, remotely wave-serrate, glabrous, glaucous beneath : stipules half-cordate, gash-toothed : aments precede the leafing, villose ; germs pedicelled, ovate, acuminate, silky : style long ; stigma 2-cleft.

discolor (red-root willow, basket willow. O. Ap. ♄.) leaves oblong, obtusish, glabrous, remotely serrate, entire at the apex, glaucous beneath : stipules caducous, lanceolate, serrate :

aments flower near leafing time, oblong, downy ; scales oblong, acute, dark-coloured, hairy : germs subsessile, lanceolate, downy : stigma 2-parted.

angustata (C. P. Ap. ♄.) leaves lanceolate, acute, very long, gradually tapering to the base, serrulate, glabrous, both sides coloured nearly alike : stipules half-cordate : aments precede the leafing, erect, smoothish : germs pedicelled, ovate, glabrous : style 2-cleft ; stigma 2-lobed.

longifolia (long-leaf willow. P. A. M. ♄.) leaves linear, acuminate at both ends, elongated, remotely denticulate, glabrous, both sides coloured alike : stipules narrow-lanceolate, denticulate : aments flower after leafing, peduncled, downy : scales flat, retuse : filaments bearded at the base, twice as long as the scales. About 2 feet high.

3. *Leaves closely and acutely serrate.*

Remark. The first six of the following species have about 3 stamens to each flower.

babylonica (weeping-willow. E. M. ♄.) branchlets pendant : leaves lanceolate, acuminate, serrate, glabrous, upper and lower sides of different colours : stipules roundish, contracted : aments flower at leafing time : germs sessile, ovate, glabrous. Supposed to be the willow on which the Israelites hung their harps, when captive in Babylon. See the 137th Psalm.

falcata (P. ♄.) leaves long, lance-linear, gradually tapering above, subfalcate, acute at the base, close-serrate, glabrous both sides, in the young state silky : stipules lunulate, toothed, deflected. Branches very slender and brownish.

nigra (brittle-joint willow, black-willow. O. M. ♄.) leaves lanceolate, acute at both ends, serrulate, same colour both sides, glabrous, peti-

oles and midribs downy above : stipules contracted, toothed : aments flower at leafing time, erect, cylindric, villose : scales oblong, very villose : filaments 3 to 6, bearded at the base : germs pedicelled, ovate, glabrous : style very short ; stigma 2-cleft. About 20 feet high.

lucida (shining willow. P. A. C. M. ♄.) leaves ovate-oblong, cuspidate-acuminate, rounded at the base, serrate, glandular, glabrous both sides, shining : stipules oblong, glandular-serrate : aments flower in leafing time ; scales lanceolate, obtuse, hairy at the base, serrate at the apex, glabrous : germs lance-subulate, glabrous ; style 2-cleft ; stigma obtuse. Size between shrub and tree.

rigida (stiff-leaf willow. P. A. New-England. Ap. ♄.) leaves lance-oblong, acuminate, subcordate at the base, rigid, glabrous, sharply serrate ; lower serratures elongated : petioles villose : stipules broad, cordate, obtuse, glandular-serrate : aments flower at leafing time : scales lanceolate, dark coloured, woolly : germs long-pedicelled, lanceolate, glabrous : style very short ; stigma 2-parted. Branches red towards the end, in the young state pubescent. Used also in basket-making.

cordata (heart-leaf willow. P. A. Ap. ♄.) leaves lance-oblong, acuminate, cordate at the base, sharply serrate, glabrous, paler beneath : stipules broad, round-ovate, cartilaginous-serrate : aments flower at leafing time ; scales lanceolate, dark coloured, woolly : germs pedicelled, lanceolate, glabrous ; style very short, stigma 2-cleft. 6 or 8 feet high.

grisea (grey-willow. P. Ap. ♄.) leaves lanceolate, acuminate, serrulate, glabrous above, downy on the midrib, silky or naked beneath : stipules linear, deflected, caducous ; ament precedes the leafing ; scales oblong, hairy, dark coloured at the apex : germs oblong, pedicelled, silky ;

stigma sessile, obtuse. About 8 feet high, joints brittle at the base.

vitellina (yellow willow. O. M. ♄.) leaves lanceolate, acuminate, thickly-serrate, glabrous above, whitish-silky beneath : stipules none : aments flower in leafing time, cylindric : scales lance-ovate, both sides coloured alike, outside pubescent : germs sessile, lance-ovate, glabrous : stigma subsessile, 2-lobed. Middle size tree. Pursh is certainly incorrect in saying this very common willow is introduced.—Var. *alba*, has the leaves white-silky both sides, and very long aments. This variety is usually the tallest.

ambigua (C. W ? Ap. ♄.) leaves lanceolate, acuminate, glabrous, both sides of the same colour, glandular-serrate : aments flower in leafing time : the pair of nectaries large ; lobes lanceolate deformed, toothed at the apex, glabrous : the terminal florets have 3 stamens. Resembles the vitellina.

russeliana (P. ♄.) leaves lanceolate, acuminate, serrate, glabrous : aments flower in leafing time ; florets generally with 3 stamens : germs pedicelled, subulate, smooth ; styles elongated. Tall tree.

Salsola, 44.

kali (saltwort. H. Y. C. P. Ju. ☉.) diffuse : leaves 3-sided-subulate, mucronate, linear : calyx margined, axillary. Flowers very small, seeds in a membranaceous calyx.

caroliniana (H. Y. C. P. Ju. ☉.) decumbent, glabrous : leaves spread-subulate, spinose : flower bearing buds very turgid : fruit-bearing calyx flat-winged.

tragus (New-Jersey. Ju. ☉.) erect : leaves subulate, spinose, smooth : calyx ovate.

soda (C. ☉.) spreading ; leaves without prickles.

salsa (Can. ☉.) erectish, very branching: leaves linear, without prickles, fleshy: glomerules crowded, somewhat spiked; fruit-bearing calyx round-depressed.

Salvia, 27.

officinalis (sage. E. b. J. ♃. or ♄.) leaves lance-ovate, crenulate: whorls few-flowered: calyx mucronate.

sclarea (clarry. E. ♂.) leaves rugose, cordate, oblong, villose, serrate: floral bracts longer than the calyx, concave, acuminate.

lyrata (wild sage. P. Can. b. M. ♃.) radical leaves lyrate, toothed: upper lip of the corol very short: stem nearly leafless, reverse-hairy. Var. *obovata*, has the leaves obovate, repand.

verbenaca (vervain sage. P. b-p. J. ♃.) leaves serrate, sinuate, smoothish: corol narrower than the calyx.

urticifolia (nettle sage. New-Jersey. b. J. ♃.) villose-viscous: leaves ovate-oblong, toothed, decurrent along the petiole.

Sambucus, 47.

canadensis (black-berried elder. O. w. J. ♄.) branchlets and petioles glabrous: leafets about in 4 pairs, oblong-oval, glabrous shining, acuminate, midrib subpubescent, base sometimes appendaged: cyme lax, divided into about 5 parts.

pubescens (red-berried elder. O. w. M. ♄.) bark warty: leafets in 2-pairs, lance-oval, pubescent beneath: flowers raceme-panicled or in a crowded bunch.

Samolus, 40.

valerandi (brookweed. P. Y. N. w. Ju. ♃.) leaves

obovate : racemes elongated : pedicels bracted near the middle.

Sanguinaria, 64.

canadensis (bloodroot. O. w. Ap. 4.) leaves subreniform, sinuate-lobed : scape 1-flowered. A variety, *stenopetala*, has linear petals. Root highly efficacious in the influenza, hooping-cough, and the late epidemic. Ives. See Bigelow's Med. Bot.

Sanguisorba, 34.

canadensis (burnet saxifrage. N. C. P. w. Ju. 4.) flowers in a long cylindric spike : stamens several times longer than the corols. The leaves resemble the burnet. Grows plentifully in Deerfield, Mass.

media (Can ? P. r-w. Ju. 4.) spikes cylindric : stamens a little longer than the corol.

Sanicula, 45.

marilandica (sanicle. O. w. J. 4.) leaves digitate ; leafets oblong, gashed : part of the flowers are fertile, sessile and subternate ; the others are barren, pedicelled and the most numerous. The stem is upright and smooth, with pretty upright branches. The seeds are furnished with hooked bristles. After the unopened flowers appear, they are a long time in that state before they expand. About 2 or 3 feet high.

Saponaria, 58.

officinalis (soapwort. Y. W. P. w. J. 4.) calyx cylindric : leaves lance-ovate. About 12 or 14 inches high. It may have been introduced from Europe.

vaccaria (field soapwort. W. r. Au. ☉.) calyx 5-cornered, cone-ovate: leaves ovate, acuminate, sessile. Probably introduced; but it now grows wild along the Hoosack, near Williams College.

Sarothra, 47.

gentianoides (nit-weed, false john's wort. Y. C. p. y. J. ☉.) small, erect, setaceous-ramose; leaves minute, close-pressed: flowers on the branchlets, alternate, solitary: stamens 5 to 10: capsule oblong, 1-celled. On the sandy plain west of Ball's spring, New-Haven, it grows about 5 or 6 inches high, has a leafless appearance, and always 10 stamens.

Sarracenia, 64.

purpurea (side-saddle. A. H. Y. P. N. C. p. J. ♃.) leaves (which are the lateral brims of large cups) short, erectish, spreading, having reversed prickles within; petioles radical, inflated, forming large cups, a little contracted at the top, with a vertical wing along the upper side of each. The scape grows 1 to 2 feet high, with a single, large, nodding flower. The whole plant has a very singular appearance for this latitude, having the aspect of many tropical plants. Grows plentifully in Botany ponds, 2 miles east of Albany, and in Tracy's swamp, 3 miles west. Also in the lakes on Catskill Mt.

Satureja, 69.

hortensis (summer savory. E. b-w. Ju. ☉.) peduncles axillary, somewhat in a cyme: leaves lanceolate, entire: stem brachiate.

montana (winter savory. E. ♄.) peduncles somewhat 1-sided: segments of the calyx acuminate, mucronate: leaves mucronate.

Satyrium, 89.

bracteatum (satyrion. P. W. A. g-w. M. 4.) lip linear, emarginate at the apex, obsoletely 3-toothed; coloured calyx leaves somewhat converging, lateral ones ovate, broader: bracts twice as long as the flowers, leaf-like, spreading: roots palmate. About 6 to 10 inches high.

obsoletum (New-England. P. Ju. 4.) lip lance-oblong, undivided: coloured calyx leaves erect: germs pedicelled: scape naked: bracts short: roots palmate.

virescens (P. A? g. Ju. 4.) lip lanceolate, crenate: coloured calyx leaves converging: bracts longer than the flowers: roots fascicled. 12 to 18 inches high. Pursh places all these species under the genus Orchis.

Saururus, 52.

cernuus (lizard's tail. P. C. Can. Ju. 4.) stem leafy, many-spiked: leaves heart-sagitate. The stamens are so obscure, they can hardly be counted.

Saxifraga, 58.

virginiensis (rock saxifrage. O. w. M. 4.) minutely pubescent: leaves oval, obtuse, crenate, decurrent into the petiole: flowers subsessile on the dichotomous branches of an almost leafless scape. It may be found in flower from 1 to 15 inches high. S. nivalis. But Pursh makes the nivalis a different species, growing in Labrador.

pensylvanica (water saxifrage. O. g-w. J. 4.) pubescent: leaves lance-oblong, acute at both ends, obsoletely denticulate: scape leafless; panicle oblong, with fascicled branches at the top.

Generally about a foot high : but I have seen it three feet high along Whiteoak creek, near Williams College.

Scabiosa, 35.

stellata (star scabious, cat's eye. E. y-w. ☉.) corol 5-cleft, radiate : leaves cut and jagged : outer crown of the seeds orbicular, large, spreading, membranous, many-nerved. The heads of seeds are very ornamental for flower-pots in the winter, on account of their permanent shining crown.

atropurpurea (sweet scabious. E. 4.) corol 5-cleft, radiating : leaves pinnatifid and cut : receptacle cylindric : outer crown of the seed short, lobed and crenate.

Scandix, see Chaerophyllum and Myrrhis.

Scheuchzeria, 52.

palustris (less flowering rush. A. g-y. J. 4.) stem glabrous : leaves semi-cylindric, sheathing at the base ; each having a lateral pore on the inner side, immediately below the cartilaginous tip. Grows very abundantly in Botany ponds at Greenbush, 2 miles east from Albany.

Schizaea, 104.

pusilla (one-sided fern. New-Jersey. Ju. 4.) frond simple, linear-compressed : spikes conglomerate, inflexed, one-way. A party of botanists, consisting of Le Conte, Eddy, Pursh and Whitlow, found 3 specimens only of this species, in 1805, all of which have been lost.—This summer (1818) Dr. Torrey and Mr.

Cooper have found great numbers of them.—The only known locality is near Quaker bridge, New-Jersey, in a swamp. The specimen, which Dr. T. sent to me consists of 20 filamentous stems, proceeding from the same root. Some of them have heads not unrolled. The tallest is 4 inches high, terminated by the one-sided fan-like aggregation of spikes, which is but one-eighth of an inch.

Schoenus, 28.

setaceus (bog-rush. P. 2.) peduncles axillary, and terminal, about 3-flowered: culm 3-cornered; culm and leaves setaceous. Most of the species of this genus are now removed to the genus Rhynchospora.

Schoenus, see Rhynchospora.

Schwalbea, 71.

americana (chaff-seed. New-Jersey. p. J. 4.) simple, pubescent: leaves lanceolate: racemes terminal; flowers alternate.

Scirpus, 29.

1. *Culm with one terminal spike.*

tenuis (club-rush. O. M. 2.) spike oval, acutish at both ends; the 2 ovate, obtuse bracts are dark-coloured with whitish margins: culm 4-sided, leafless, a span high: sheaths truncate, submucronate: root creeping horizontally. In wet places, like most of the species of this genus. S. quadrangulatus.

palustris (P. M. 4.) spike oblong, erect: bracts obtuse: culm leafless, terete, purplish at the base, not hollow, somewhat jointed, enclosed

at the base in a truncate sheath. About 2 feet high. Willdenow says, the sheaths and scales are lanceolate, acute. The root creeps horizontally. Seed roundish, rugose, bristles 3 or 4, hispid.

glaucus (P. C.) spikes ovate, acute, sooty yellow; scales ovate, obtuse, emarginate, membranaceous: culm glaucous, leafless, many-angled; the sheath striate, glabrous, acute: 4 hispid bristles longer than the orbicular seeds. This is one of Muhlenberg's anonymous species. Dr. Torrey found the same near New-York, and gave it this name.

capitatus (P. C. Au.) spike globular-ovate, obtuse; culm erect, leafless, compressed, cespitose, becoming slender under the spike; the sheath at the base retuse-mucronate, becoming white: seed shining, oval, glabrous, with 6 bristles, longer than the seed, placed under the style. Eleocharis of Brown.

trichodes (P. C. J.) spike ovate, acute, 1, 4 or 6-flowered, with a single obtuse bract: culm acicular, about an inch and an half high, cespitose, 4-sided, purplish at the base; sheath truncate, obtuse: seed 3-sided, shorter than the bristles.

intermedius (W. P. S.) spike ovate-oblong, acute, somewhat 2-cleft: culm greenish, 4-sided, cespitose, sulcate, a hand's breath high; sheath at the base acuminate: seed pear-form; bristles 6, longer than the seeds.

planifolius (P. M.) spike ovate, acute, 6-flowered: bract yellowish, ovate, cuspidate, longer than the spike: culm 3-sided, a span high, nearly leafless, cespitose: leaves subradical, alternate, linear, flat, keeled, scabrous; lowest ones broad, abbreviated, nerves mucronate; the rest 3-nerved, equalling the culm: seed 3-sided, with 3 bristles equalling the seeds.

obtusus (Whitehills. Ju.) culm terete, naked:

spike lanceolate, scales fleshy at the apex, obtuse. A new species discovered by Bigelow and Boot.

bracteatus (Whitehills. Au.) culm terete: spike ovate, acute: involucre-like bracts: florets monandrous. A new species by Bigelow and Boot.

depilatus (C.) culm leafless, 4-sided, acicular: spike ovate, obtusish, 1-bracted: glumes ovate, obtuse, convex: pistil 3-cleft, flat: seed roundish, mucronate. Borders of salt marshes.—A new species discovered by J. Le Conte, Esq.

2. *Culm with several spikes.*

lacustris (great bull-rush. P. C. J. 4.) spikes subterminal, many, oblong-ovate, peduncled and sessile, with sooty-yellow bracts; peduncles flat, 2-edged and terete: scales glabrous mucronate: glumes ovate, obtuse, mucronate: pistil 2-cleft: culm 4 or 5 feet high, terete, leafless, becoming slender at the top: seeds obovate; bristles 4, hispid, rather longer than the seed.

acutus (common bull-rush. O. Ju. 4.) spikes with unequal compressed peduncles, oblong, subumbelled, lateral, near the top: culm about 4-feet high, leafless, terete, having oblong sooty yellow spots: glumes yellowish, keeled, mucronate, pubescent.

triqueter (O. Ju. 4.) spikes lateral, 1 to 5, ovate, conglomerate, sessile, sooty-yellow: culm perhaps somewhat leafless, sharply 3-corned, 3 to 5 feet high, with an erect mucronate point, hollowed out on the sides: glumes ovate, mucronate, keeled: pistil 2-cleft: seed somewhat 3-sided, acuminate-crowned, flat and convex, becoming black, setose at the base. Var. ? *monotachius*, is about half a foot high, with a very short subradical leaf, sheath obtuse, bearing the

leaf ; spike simple ovate, sessile ; seed oval.

debilis (P. C. Au.) spikes lateral, sessile, ovate, 1, 3, or 9, bractless, many-flowered, short: glumes ovate, obtuse and acuminate, margin white, keel green : culm leafless, erect, channelled, about one foot high, cespitose, sheathed at the base, apex strait: seed somewhat 3-sided or obovate, shining, dark-coloured, rugose or punctate, bristles 3 to 5, hispid, a little longer than the seed.

ferrugineus (P. C.) spikes subterminal, one in the middle sessile, the rest (3 or 4) peduncled, ovate acuminate ; the terminal involucre 3-leaved, unequal, pubescent, one leafet strait : glumes ovate, acute, keeled, redish-brown, a little hairy : pistils fringed : culms cespitose, compressed, striate, glabrous : leaves radical and alternate, flat, striate, a little punctate, equalling the culm, at the base a broad sheath with a pubescent margin : seed obovate, striate, beardless. On dry land an inch or two in height, on wet land 1 or 2 feet.

spadiceus (P. C.) spikelets ovate-oblong ; scales roundish, glabrous, chesnut-brown : spikelets in a terminal umbel ; peduncles compressed, 1-spiked and divided into 3 or 4 spikes ; involucres 3-leaved, unequal : style compressed, pubescent : culm compressed, about 3 feet high : radical leaves filiform, glabrous : seed compressed, striate, beardless.

capillaris (C. P. New England. Ju.) spikes 1 to 4, lateral, under the apex of the culm, one sessile, the rest peduncled ; involucre 1 or 2-leaved : lower valve subulate, the rest obtuse, the keel green or white : culm setiform, an inch or two high, 3-sided, cespitose, nearly leafless : the leaves are subradical and alternate, setaceous, sheathing at the base with hairs at the top of the sheath : seed somewhat 3 sided, beardless, subrugose, nerves transverse. Isolepis of Brown.

autumnalis (P. New England. Ju.) spikes terminal, panicled, subumbelled, peduncled, proliferous with a 2 or 3-leaved involucre, oblong, acute, sooty-yellow, alternately sessile : glumes ovate, mucronate, keeled : culms a span high, 2-edged, cespitose, with linear, flat, nerved leaves at the base : seed 3-sided, nerveless, beardless.

subsquarrosus (P. Ju.) spikes 1 to 3, terminal, glomerate, ovate, sooty-yellow, sessile, many-flowered ; involucre 3-leaved, leafets unequal, linear, broader at the base, striate : glumes ovate, acute, purplish under the apex, at the apex mucronate and subsquarrose, keel green : culm from 2 to 5 inches high, 3-sided, almost leafless, purplish at the base, with 2 alternate, short subradical leaves ; sheaths of the leaves nerved, glabrous : seed 3-sided, beardless.

retrofractus (P. H. Ju. ♃.) spikes 6 to 8, erect, ovate, peduncled, on a many-angled receptacle ; involucre 3-leaved, outer one very long, scabrous ; peduncles 6 to 8, unequal, compressed, glabrous, sheathed at the base ; the spikelets linear, acute, terete, imbricate, sub-pedicelled ; bracts 3-flowered, upper ones erect, the rest at length reflexed : lower valve ovate, middle one lanceolate, terminal one subulate : culm 3-sided, 1 or 2 feet high, striate, nearly leafless : the subradical leaves lanceolate, striate, keeled, glaucous beneath ; sheath striate : seed 3-sided, peduncled, beardless.

cyperiformis (New-England. Ju. ♃.) spikes roundish, terminal, 3 peduncled and one sessile (sometimes but the one sessile) ; involucre longer than the spike, 3 or 4-leaved, channelled, margin scabrous : spikelets 7-flowered, linear, alternate, terete : glumes alternate, remote, ovate, obtuse, upper ones acute : culm 3-sided, almost leafless, a span high : subradical leaves linear, glabrous ; seed 3-sided, beardless.

brunneus (P, C. S.) spikes panicled, terminal; peduncles 5, unequal, alternately terete and flat, furnished at the base with a truncate sheath and a lanceolate leaf or involucre; spikelets 3, 5 or 16, ovate, glomerate: glumes imbricate, ovate, keeled, submucronate, brown: anthers red: culm 3-sided, striate, glabrous, leafy, about 2 feet high: leaves alternate, lance-linear, nerved, margin scabrous; with a glabrous striate sheath: seed 3-sided, with bristles longer than the seed. The general involucre is 4-leaved, erect, longer than the panicle.

atrovirens (C. A. P. New-England. J. 4.) spikes in a terminal panicle, proliferous: involucre 3-leaved, with the margin and keel scabrous: branches of the panicle or peduncles unequal, 3 to 6, pedicels about 12; spikelets glomerate, about 12, ovate, acute: glumes imbricate, ovate, acute, keel hairy: stem 3-sided, striate; glabrous, leafy, about 3 feet high: radical leaves lanceolate, keeled, long, those of the culm alternate, scabrous: sheaths striate, glabrous, pellucid: seed 3-sided, small, with 4 short bristles.

pendulus (P. J. 4.) spikes in terminal and lateral panicles, nodding, all oblong-cylindric, pedicelled; involucre 1-leaved: glumes imbricate, ovate, acuminate, white, with green keels: culm 3-sided, glabrous, leafy, about 3 feet high: leaves of the culm alternate, flat, striate, margin scabrous, sheaths striate: seed 3-sided, with may interwoven bristles longer than the seeds.

lineatus (New-Jersey.) spikes in a spreading terminal panicle; peduncles 10, sheathed at the base, retuse; spikelets terminal, lanceolate, 10-flowered, pedicels pubescent: glumes ovate, acute: involucre 1 or 2-leaved, much shorter than the panicle: culm 3-sided, glabrous, leafy, striate; leaves of the culm lanceolate, al-

ternate, flat, striate, margin glabrous, with glabrous striate sheaths: seed 3-sided, bristly at the base.

macrostachyos (H. W. C.) spikes sessile, pedunculed, 6 or 12, ovate: involucre 3-leaved, unequal, elongated: scales of the spikes ovate, a little hairy, 3-cleft, the middle division awn-form: culm exactly 3-sided, glabrous, leafy at the base, more than a foot high: leaves lance-linear, nerved, keeled, glabrous, longer than the culm, sheathing at the base: seed with bristles, hispid backwards.

gracilis (C.) spikelets oblong, 2-bracted: glumes oblong, obtuse, keeled: pistils 3-cleft, plumose: culm leafless, 4-sided, with a purplish sheath at the base. On the borders of salt marshes. Torrey. A new species discovered by J. Le Conte, Esq.

Remark. The species of Scirpus are very numerous in every part of our district; and it is very difficult to distinguish them by their essential characters alone. Therefore to aid students in determining the species of this genus, I have here given a translation of most of Muhlenberg's enlarged descriptions.

Scleranthus, 58.

annuus (knawel, gravel chickweed. H. Y. N. C. A. P. w-g. J ☉.) calyx of the fruit spreading, acute: stem spreading, subprostrate. In bunches 3 or 4 inches in extent, or more.

Scleria, 91.

triglomerata (whip-grass. P. J. ♃.) culm erect, simple, 3-sided, scabrous: leaves scabrous at the margin; fascicles few-flowered, terminal: glumes ovate, mucronate, scabrous: nuts globose, acute, rugose.

pauciflora (P. Au. 4.) leaves narrow-linear, channelled, margin scabrous: fascicles very few-flowered, in pairs, terminal: nut small, white, transversely rugose. Stem erect, hardly a span high.

reticularis (New-Jersey Ju. 4.) culm and leaves glabrous: panicles terminal and lateral, few-flowered: nut net-veined.

verticillata (P. Au. 4.) culm simple, 3-sided: culm and leaves glabrous: spike naked, with alternate distant glomerules: nut globose, mucronate, transversely rugose-warty.

Sclerotium, 118.

semen (barked puff-ball. P.) globular or pearform, blackish, scattered, becoming rugged.

Scolopendrium, 103.

officinarum (caterpillar fern. Onondaga. Ju. 4.) frond broad-lanceolate, cordate at the base: stipe chaffy.

Scolymus, 83.

hispanicus (golden thistle. E. 4.) flowers aggregated: leaves scabrous, rough-haired on the mid-rib beneath; interruptedly decurrent.

Scorpiurus, 79.

vermiculata (caterpillars. E. J. ☺.) peduncles 1-flowered: legumes covered with obtuse scales.

Scorzonera, 82.

hispanica (viper's grass. E. 4.) stem branching, leaves clasping, lanceolate, entire, subserrulate at the base.

Scrophularia, 71.

marilandica (figwort. O. g-p. Ju. ♃.) leaves cordate, serrate, acute, roundish at the base; petioles ciliate below: fascicles of the panicle lax, few-flowered. 3 to 7 feet high.

lanceolata (P. g-y. Au. ♃.) leaves lanceolate, unequally serrate, acuminate, acute at the base; petioles naked: fascicles of the panicle corymbed.

Scutellaria, 70.

galericulata (scull-cap. O. b. J. ♃.) somewhat simple, glabrous: leaves subsessile, lance-ovate, subcordate at the base, crenate: flowers axillary, solitary. Flowers large. From 10 to 18 inches high.

lateriflora (mad-dog scull-cap, hoodwort. O. b. Ju. ♃.) very branching, glabrous: leaves long-petioled, ovate, toothed: cauline ones subcordate: racemes lateral, leafy. Before the fame of the Alisma plantago had reached this country, this plant was honored with the high prerogative of controling the monster, Hydrophobia.

ovalifolia (C. P. b. J. ♃.) leaves sessile, ovate or suboval, serrate; upper ones lanceolate, subentire.

parvula (P. w-b. J. ♃.) small, simple, densely pubescent: leaves sessile; ovate, entire: flowers axillary, solitary. About 2 inches high.

integrifolia (C. P. b. Ju. ♃.) somewhat simple, densely pubescent: leaves subsessile, oblong or linear, obtuse, entire, tapering to the base: racemes laxish, leafy. Var. *hyssopifolia*, has the leaves all linear.

cordifolia (P. b. Au. ♃.) leaves heart-form.

Man

Secale, 31.

cereale (rye. E. J. ☉.) glume scabrous-ciliate: scales of the calyx narrow: awns long and reverse-prickly: leaves rough near the point.

Sedum, 59.

telephium (orpine, live-forever. E. r. w. Ju. ♃.) leaves flattish, tooth-serrate, thickly scattered: corymb leafy: stem erect.

ternatum (false ice-plant. P. w. J. ♃.) small, creeping: leaves flat, round-spatulate, ternate: flowers somewhat 3-spiked. Varies into the eighth class.

anacampseros (stone crop. E. ♃.) leaves wedge-form, entire, subsessile: stem decumbent: flowers corymbed.

Selinum, 46.

canadense (milk-parsley. P. Can. w. Ju. ♃.) very glabrous, shining: leaves doubly pinnate; leaflets many-parted, divisions lanceolate: fruit ovate.

Sempervivum, 61.

tectorum (house-leek. E. Au. ♃.) leaves ciliate: bulbs spreading: nectaries wedge-form, crenulate.

arboreum (tree houseleek. E.) stem woody, smooth, branching: leaves wedge-form, glabrous, with soft spreading hairs.

Senecio, 86.

1. *Florets tubular; rays none.*

Remark. The three first species vary from

the character of the section, under which the genus is placed; being destitute of rays.

vulgaris (groundsel. A. P. y. J. ♃.) leaves mostly clasping, sinuate-pinnatifid, toothed: flowers panicled: stem erect, branched, angular. About Albany it grows 18 to 20 inches high, and the leaves a very little clasping.

hieracifolius (fire-weed. O. w. J. ☉.) stem wand-panicled: leaves clasping, oblong, acute; deeply, acutely and unequally toothed: calyx smooth. From 4 to 8 feet high. This plant springs up wherever land has been recently cleared of timber; and more particularly if the land has been burned over. It is very strong scented, and is said to be useful in stopping blood.

elongatus (long-stem groundsel. P. Ju. ♃.) glabrous: radical leaves spatulate, serrate, tapering into the petiole; cauline leaves pinnatifid, toothed very remote: peduncles elongated, corymb-umbelled.

2. *Flowers with ray florets.*

aureus (ragwort. O. y. J. ♃.) radical leaves ovate, cordate, serrate, petioled; cauline ones pinnatifid, toothed, terminal division lanceolate: peduncles subumbelled, incrassate. 18 to 24 inches high.

balsamitae (balsam groundsel. C. P. y. J. ♃.) radical leaves oblong, serrate, petioled; lower cauline ones lyrate-pinnatifid, serrate; upper ones pinnatifid, toothed: flowers subumbelled; stem and peduncles villose at the base.

obovatus (C. P. y. M. ♃.) radical leaves obovate, crenate-serrate, petioled; cauline ones pinnatifid, toothed: flowers subumbelled, long peduncled: stem somewhat glabrous.

gracilis (P. M. ♃.) radical leaves very long-petioled, orbicular, subcordate, crenate; cauline

ones few, very remote, linear-oblong, dilated at the base, gash-toothed : peduncles very short, hirsute, subumbelled : calyx hairless : rays few, very short.

canadensis (Can.) leaves doubly pinnate, linear, glabrous ; uppermost ones simply pinnate : flowers in compound, fastigiate corymbs.

Serpicula, 93.

occidentalis (little snakeweed. C. P. w. Ju. ♃.) flowers triandrous and perfect : stigmas strap-like, reflexed, 2-cleft : leaves ternate, linear, acute. Elodea canadensis. Mx.

verticillata (P. w. J.) leaves whorled, lance-linear, glabrous, denticulate : dioecious ; stamens 3 : calyx 3-cleft. The pistillate corols are tubular. Pursh has removed this genus to the 3d class. Though most of his changes of this kind are rejected by all our practical botanists ; in this instance perhaps we ought to have followed him.

Sicyos, 97.

angulata (single-seed cucumber. P. C. w. Ju. ☺.) leaves cordate with obtuse hind lobes, 5-angled, scabrous, denticulate : fruit capitate, hispid. Cultivated every where ; but I never saw it in a situation which evinced its being indigenous.

Sida, 77.

abutilon (indian mallows. O. y. Ju. ☺.) leaves round-cordate, acuminate, toothed, tomentose : peduncles solitary, shorter than the petioles : capsules 2-awned, truncate. 4 to 6 feet high ; about gardens, roads, &c.

spinosa (P. y. Ju. ☺.) stem spreading ; axils subspinose : leaves long-petioled, lance-ovcat, obsoletely cordate, toothed : peduncles solitary, axillary : stipules setaceous, longer than the peduncle : capsules 2-beaked.

crispa (P. w. Ju. ☉.) leaves oblong-cordate, acuminate, crenate, top ones sessile: pedancles solitary, longer than the petioles, when they bear fruit they are deflected: capsules inflated, awnless, crisp-undulate. On the sea coast.

napaea (P. w. Ju. 4.) leaves cordate, 5-lobed, glabrous; lobes oblong, acuminate, toothed: peduncles many-flowered: capsules awnless, acuminate. 2 to 4 feet high.

Silene, 59.

antirrhina (sleepy catchfly. O. w-p. J. ☉.) leaves lanceolate, subulate: peduncles 3-parted: petals emarginate: calyx ovate. Flowers small.

pensylvanica (pink catchfly. Y. H. N. C. P. A. r. J. 4.) viscid-pubescent: leaves wedge-form; stem leaves lanceolate: the small stems are few-flowered at the summit: petals obtuse, slightly emarginate, subcrenate.

virginica (P. r. J. 4.) decumbent: wholly viscid-pubescent: leaves oblong, a little rough at the margin: panicle dichotomous: petals 2-cleft: stamens and pistils exsert. Very handsome.

nocturna (P. w. J. ☉.) flowers alternate, sessile, on a one-sided spike: petals 2-cleft.

catesbaei (P. r-p. J. 4.) flowers large; petals torn, furnished with a tooth each side: calyx cylindric: panicle sub-trichotomous: leaves smooth, broad-lanceolate.

quinquevulnera (Southern states. r. J. ☉.) hirsute: leaves wedge-oblong, top ones linear: petals roundish, entire: calyx bearing the fruit erect, alternate in a kind of spike.

armeria garden catchfly. E. w-r. Au. ☉.) flowers fascicled, fastigiate: upper leaves cordate, glabrous: petals entire.

Silphium, 88.

perfoliatum (ragged cup. P. y. Au. 4.) stem 4:

sided, smooth : leaves opposite, triangular; connate, ovate, serrate. 5 or 6 feet high; very strong.

ternatum (P. y. Ju. ♃.) stem terete, smooth: leaves whorled in threes, petioled, lanceolate, subdenticulate, a little scabrous, ciliate at the base; the upper ones scattered, sessile : panicle dichotomous : calyx ciliate.

integrifolium (P. y. Au. ♃.) stem 4-sided, rough : leaves opposite, sessile, oblong, entire, scabrous : flowers few, short-peduncled. About 4 feet high.

Sinapis, 75.

nigra (common mustard. E. y. J. ☉) silique glabrous, 3-sided, somewhat smooth, close-pressed to the stem : leaves at the top lance-linear, entire, smooth.

alba (yellow-seed mustard. E. y. ☉.) silique bristly, rugged, shorter than the 2-edged beak : leaves pinnatifid; upper ones subly rate, all irregularly toothed. Seeds large, pale-yellow and sometimes become blackish.

Sison, 35.

canadense (honewort, mock-sanicle. O. w. J. ♃.) leaves ternate : general involucre wanting [therefore it ought to have stood in the section next to Chaerophylium] seeds oval-oblong.— Stem 1 to 2 feet high, branched, terete, smooth : leafets smooth, doubly and sharply serrate; and the lower lateral ones sometimes divided, with the middle one 2-lobed : umbels slender.

Sisymbrium, 75.

amphibium (water radish. W. N. A. y. J. ♃.) silique (or rather silicle) oblong-ovate, declined : leaves lance-oblong, pinnatifid or serrate : petals longer than the calyx. 1 to 2 feet high

A student would be induced, from the shortness of the pod, to look for it in the first order.

nasturtium (english watercress. H. P. w. J. ♃.) silique short, declined: leaves pinnate; leafets roundish, somewhat repand-toothed.

palustre (Can. P. y. Ju. ☉.) silique declined, oblong-ovate: leaves pinnatifid, serrate: petals shorter than the calyx.

Sisyrinchium, 75.

anceps (blue-eyed grass. O. b. J. ♃.) scape [or culm] simple, 2-edged or 2-winged: glume-like spathe of 2 unequal valves extending above the flower. Students generally puzzle themselves in examining this plant, by considering the 3 united filaments enclosing the style, as a single filament. 10 or 12 inches high.

mucronatum (P. b. J. ♃.) leaves and scape simple, subsetaceous: spathe coloured, with one valve terminating in a long mucronate point.

Sium, 46.

latifolium (water-parsnep. O. w. Ju. ♃.) leaves pinnate: leafets oblong-lanceolate, equally serrate: stem erect, angular, hollow, smooth. The leaves are alternate, and generally consist of about 3 pair of leafets, besides the terminal one. Whenever any of the leaves grow under water, they are subdivided.

lineare (W. P. C. Y. w. Ju. ♃.) leaves pinnate; leafets elongated, linear, or sublanceolate: serratures remotish: general involucre few-leaved; partial ones numerous, linear: umbels with short peduncles.

rigidius (P. w. Ju. ♃.) leaves pinnate; leafets lanceolate, subentire, or toothed above. The flowers are small; leaves taper at both ends; the involucres small.

longifolium (New-Jersey. w. Au. 2.) leaves pinnate; lower leafets very long, linear-falcate, a few scattering teeth: stem few-leaved, and no leaves above: umbels nakedish, somewhat in pairs.

Smilacina, see Convallaria.

Remark. Smith says, he cannot admit this name, notwithstanding all his respect for its excellent author, Desfontaines. But he thinks the line of distinction should be more accurately drawn between the Convallaria and some of its neighbors; though he seems not inclined to adopt the modern divisions of this very natural genus. See Rees' Cyclopoedia.

SMILAX, 190.

1. *Stem woody; branches angled.*

quadrangularis (bind-bramble. P. C. J. ♄.) prickly: stem 4-cornered, unarmed above: leaves unarmed, ovate, subcordate, acute, 3-nerved. Berries black.

sarsaparilla (C. P. J. ♄.) prickly: leaves unarmed, lance-ovate, cuspidate, sub-5-nerved, becoming glaucous beneath: the general pedunclos longer than the petioles.

2. *Stem woody; branches terete.*

rotundifolia (green brier. O. w-g. J. ♄.) prickles scattered: leaves (when in maturity) round-ovate, acuminate, slightly cordate, 5-nerved: berry spherical. This singular bramble sometimes climbs to the height of an hundred feet, while the largest part of its stem does not exceed the fourth of an inch in diameter.

caduca (P. C. Can. J. ♄.) prickly : leaves ovate, mucronate, 5-nerved : general peduncles scarcely longer than the petioles.

pseudo-china (New-Jersey. M. ♄.) unarmed in all parts : cauline leaves cordate, ramose ones oblong-ovate, 5-nerved : peduncles very long.

laurifolia (New Jersey. Ju. ♄.) prickly ; branches unarmed : leaves oval or lance-oval, leathery, obtuse, recurve-prickly, 3-nerved : umbels short-peduncled.

pandurata (New Jersey. Ju. ♄.) prickly : leaves ovate-guitarform, acuminate, 3-nerved : general peduncles twice as long as the petioles.

3. *Stem herbaceous.*

peduncularis (jacob's ladder. O. w-g. M. ♃.) stem terete, climbing or arching over : leaves round-ovate, cordate, acuminate, about 9-nerved (sometimes but 7) umbels long-peduncled.

herbacea (O. g. J. ♃.) stem angled, erect, simple : leaves long-petioled, oval, about 7-nerved : umbels with long compressed peduncles : berries depressed-globose.

SMYRNIUM, 46.

aureum (alexanders. O. y. J. ♃.) leaves biternate ; leafets lance-oval, serrulate : umbels with short peduncles. Some of the leaves are often quinate. At a little distance this plant appears like a wild parsnip ; though much smaller.

cordatum (A. C. P. y. J. ♃.) radical leaves round-cordate, crenate ; cauline ones petioled, ternate ; uppermost ones 3-parted : umbels with short petioles.

integerrimum (A. C. P. y. ♃.) very glabrous : leaves subglaucous ; lower ones thrice ternate, upper ones doubly ternate ; leafets oval, entire : umbels with a few setaceous, elongated peduncles.

barbinode (P. p. y. Ju. 4.) leaves all ternate; leafets ovate, acute, serrate. S. atropurpureum.

Solanum, 40.

dulcamara (bittersweet. O. b-p. Ju. ♄.) stem unarmed, woody, climbing: lower leaves mostly cordate, glabrous; upper ones mostly guitar-hastate: few-flowered corymbs opposite to leaves. This is the true bittersweet; but the Celastrus scandens is wrongly called so by some. Useful in asthma and rheumatism. Cutler.

nigrum (deadly nightshade. O. w. p. b. J. ☉.) stem unarmed, erectish or erect; branches angled, dentate: leaves ovate, repand, glabrous, racemes two-ranked, nodding.

carolinense (P. b. J. 4.) stem prickly: leaves angular-hastate, covered with prickles both sides: racemes lax.

tuberosum (potatoe. South America. b. w. Ju. 4.) stem wing-angled, unarmed: leaves interruptedly pinnate; leafets entire: flowers subcorymbed: roots knobbed-tuberous.

lycopersicum (love apple, tomatoes. E. y. S. ☉.) stem unarmed: leaves pinnatifid, gashed: racemes 2-parted, leafless, fruit glabrous, torulose.

melongena (egg-plant. E. J. ☉.) stem unarmed: leaves ovate, tomentose: peduncles pendant, incrassate: calyx unarmed.

pseudo-capsicum (jerusalem cherry. E. ♄.) stem woody: leaves lanceolate, repand: umbels sessile.

Solidago, 86.

Remark. During the last summer month and autumn, the species of this extensive genus will occupy much of the time of the student in

botany. Perhaps there is more difficulty in distinguishing the species of this genus than of any other; not excepting the Aster, Carex and Salix. I shall therefore give most of the extensive and accurate descriptions of President J. E. Smith [vid. Rees' Cyclopoedia.] He took a review of Pursh and of all preceding writers, and then wrote with specimens of almost every species before him. I shall vary the expressions no more than is necessary to make our language uniform.

To the essential generic characters add: calyx oblong; with oblong, narrow, pointed, strait scales: ray florets always fewer than 10, lanceolate, 2-toothed: filaments capillary, very short: style thread-form, of the length of the stamens; stigma cloven, spreading: seed oblong-obovate.

1. *Flowers one-sided. Leaves with three combined nerves.*

canadensis (canadian golden-rod. Can. P. y. Ju. 4.) stem downy: leaves lanceolate, serrate, rough; racemes copious, panicled, recurved: rays hardly longer than the disk. 18 inches to 5 feet high. Stem angular; leaves sessile, 3 inches long, sometimes nearly entire.

procera (great golden-rod. P. Can. y. Ju. 4.) stem villose, erect: leaves lanceolate, serrate, rough, villose beneath: racemes spike-form, erect, drooping before flowering; rays short. 4 to 7 feet high.

serotina (smooth golden-rod. P. New-England. y. S. 4.) stem erect, terete, smooth: leaves lance-linear, glabrous, serrate, rough-edged: racemes panicled: peduncles downy. The young leaves are edged with many little white stiff hairs.

gigantea (giant golden-rod. P. New-England. y. Au. 4.) stem erect, glabrous: leaves lanceolate, smooth, serrate, rough-edged, obscurely 3-nerved: racemes panicled: peduncles rough-haired: rays short. 4 to 7 feet high.

ciliaris (fringed golden-rod. W. P. A. N. Y. y. 4.) stem erect, glabrous: leaves lanceolate, somewhat 3-nerved, glabrous, rough-edged, slightly serrate: racemes panicled: peduncles glabrous: bracts ciliate: rays short. The stem is angular; radical leaves petioled, oval, pointed, veiny, serrate, rough, near a foot long: branches of the panicle spreading: bracts minute.

reflexa (hang-leaf golden-rod. C. P. y. Au. 4.) stem erect, villose: leaves lanceolate, subserrate, scabrous, reflexed: racemes panicled, very little one-sided, reflexed.

lateriflora (side-flowered golden-rod. P. Can. y. Au. 4.) stem erect, a little hairy: leaves lanceolate, slightly 3-nerved, glabrous, rough-edged, lower ones subserrate, racemes panicled, a little recurved. Flowers large, the rays being much longer than the calyx, stem 2 to 3 feet high, striated, often purplish, pinnatifid, with numerous lateral flowering branches.

2. *Racemes, or flowers one-sided. Leaves veiny.*

aspera (rough golden-rod. C. P. y. Au. 4.) stem erect, terete, hairy: leaves ovate, somewhat oval, very rough, rugose, serrate: racemes panicled. About 3 feet high; leaves 1 to 2 inches long, acute; racemes dense, somewhat conic: ray florets twice as long as the calyx.

altissima (variable golden-rod. A. W. H. P. y. Au. 4.) stem erect, rough-haired: leaves lanceolate, lower ones deeply serrate, scabrous, rugose. The panicled racemes are very numerous and spread every way, so as to bring the one-sided flowers upwards; rays half as long again as the calyx. But this species is so variable, that students generally endeavor to make several species of it. It is 3 to 5 feet high. The serratures of the leaves are equal and une-

qual ; it is hairy or villose ; and sometimes the racemes diverge but little.

rugosa, (wrinkled golden-rod. P. Can. y. Au. 4.) stem erect, rough-haired : leaves lanceolate, scabrous, rugose, lower ones with close-pressed serratures : racemes panicled, very spreading. Leaves shorter and broader than the last, and the flowers a little smaller.

villosa (soft golden-rod. P. y. 4.) stem erect, villose : leaves lanceolate, softish, serrate : racemes panicled. 18 to 36 inches high.

scabra (harsh golden-rod. P. y. Au. 4.) stem erect, rough-haired, furrowed : leaves oblong, tapering to both ends, acuminate, glabrous above, rugose and scabrous beneath, along the middle close-pressed-serrate.

nemoralis (woolly golden-rod. A. Can. y. Au. 4.) stem erect downy : cauline leaves lanceolate, hispid, entire ; radical ones somewhat wedge-form, serrate : racemes panicled. 1 to 2 feet high, of a grey aspect.

patula (spread golden-rod. P. C. y. S. 4.) stem erect, glabrous : leaves oval, serrate, glabrous, radical ones oblong-spatulate : racemes panicled spreading : peduncles pubescent. Stem about 2 feet high, wand-like, angular and striate ; stem-leaves sessile, about an inch long, pointed, the radical ones resemble those of the ox-eyed daisy ; racemes about an inch long, flowers rather large.

ulmifolia (elm golden-rod. P. C. y. Au. 4.) stem erect, glabrous, striate : leaves oval, deeply serrate, acuminate, villose beneath ; radical ones obovate : racemes panicled ; peduncles villose : rays short. Radical leaves resemble those of the last species and are hairy both sides, some of the rest are oblong-ovate and only villose near the veins beneath ; the petioles are bracted.

argula (sharp-notch golden-rod. A. Can. y. S. 4.)

stem erect, glabrous : leaves glabrous, sharply and unequally serrate, cauline ones oval, radical ones oblong-ovate : racemes panicled : rays elongated.

juncea (rush-stalk golden-rod. W ? C. P. y. Au. 4.) stem erect, glabrous : leaves lanceolate, glabrous, rough-edged, lower ones serrate : racemes panicled. Stem brownish, somewhat angular and striate, leafy ; racemes a finger's length, dense, recurved-spreading, compound, pedicels roughish, bracted ; ray twice as long as the calyx.

elliptica (oval-leaf golden-rod. P. C. y. Au. 4.) stem erect, glabrous : leaves oval, smooth, serrate : racemes panicled : rays of middling length.

asperata (file-leaf golden-rod. Can. y. 4.) stem panicle-corymbed : racemes suberect ; flowers ascending : leaves lanceolate, serrate, scabrous.

recurvata (curved golden-rod. P. y. S. 4.) stem erect, pubescent : leaves lanceolate, serrate, rough-edged : racemes elongated, recurved, panicled.

sempervirens (narrow-leaf golden-rod. C. P. Can. y. S. 4.) stem erect, glabrous : leaves lance-linear, somewhat fleshy, smooth, entire, rough-edged : racemes panicled ; peduncles hairy. Stem tall, purplish, a little glaucous ; leaves many, narrow, long ; ray florets long, narrow, rather numerous.

virgata (wand golden-rod. N. C. P. W. y. Au. 4.) stem very simple, glabrous : leaves wedge-lanceolate, obtuse, entire, glabrous, close-pressed, upper ones gradually smaller : branches of the panicle elongated, with terminal racemes ; peduncles glabrous. About 2 feet high, very smooth and slender.

odora (sweet-scented golden-rod. P. Can. y. Au. 4.) stem erect, pubescent : leaves lance-linear, entire, glabrous, rough-edged : racemes pani-

eled. The upper part of the stem is furrowed; racemes 2 or 3 inches long, spreading horizontally, each generally accompanied by a leaf; bracts oblong, smooth; stalk angular and rough. This is the true golden rod tea-plant. The flowers dried so as not to be musty make a pleasant tea, which is moderately astringent and promotes perspiration.

3. *Racemes erect.*

bicolor (white golden-rod. W. A. H. Y. P. w. Au. 4.) stem hairy: leaves oval, hairy, lower ones serrate; those on the flower-branches entire, numerous, and small; scales of the calyx obtuse. Racemes are short and compact, rays white, somewhat numerous and shortish; disk florets rather numerous.

petiolaris (late golden-rod. P. C. y. Oc. 4.) stem erect, villose: leaves oval, roughish, petioled: rays twice as long as the calyx. Stem branching, terete, hoary; leaves hoary about the ribs, over an inch in length, those covering the flower-branches subentire; racemes numerous, short, with few and rather large flowers.

stricta (willow-leaf golden-rod. P. C. y. Au. 4.) stem erect, glabrous: cauline leaves lanceolate, entire, glabrous, rough-edged; radical leaves serrate: racemes panicled, erect; peduncles glabrous. The branches of the panicle are erect, simple, close.

lanceolata (grass-leaf golden-rod. N.W.H.P.Y. y. S. 4.) stem furrowed, smoothish (rough-haired, Willd.) very branching: leaves almost linear (lance-linear, Willd.) entire, roughish; nearly erect, with 3 or 5 rough nerves: corymbs terminal, level-topped: flowers in heads: rays not longer than the disk. Stem 4 or 5 feet high, leafy; leaves sessile, grass-green, about 2 inches long and a quarter of an inch wide; flow-

ers smallish; calyx ovate, smooth, shining, with tumid green-tipped scales.

tenuifolia (pigmy golden-rod. P. C. y. S. 4.) stem rough, angular, branched, corymbed: leaves spreading, linear, very narrow, slightly 3-nerved, scabrous, with axillary tufts of smaller ones: corymbs terminal, level-top: flowers in heads: rays scarcely exceeding the disk. About a foot high; leaves very small and narrow.

caesia (blue-stem golden rod. H. y. Au. 4.) stem nearly erect, very smooth and even: leaves lanceolate, glabrous, with the margins and nerves roughish: rays rather longer than the disk. Stem upright, somewhat zigzag, branched, leafy; leaves about 2 inches long, pointed, subentire, subglaucous, paler beneath: racemes numerous, short, rough-pedicelled; bracts small, smooth, subulate.

livida (purple-stem golden-rod. P. C. y. S. 4.) stem glabrous, panicled: leaves lanceolate, serrate, glabrous, rough-edged: branches racemed at the extremity: rays elongated. Stem branched, dark purple; leaves tapering to both ends.

hispida (P. C. y. Oc. 4.) stem erect, hispid, scabrous: leaves lanceolate, rough, entire: radical ones serrate: rays of middling length.—Resembles the caesia.

hirta (hairy golden-rod. North America. y. 4.) stem panicled, rough-haired: leaves lanceolate, scabrous both sides; cauline ones serrate, those on the branches entire: rays elongated.

lithospermifolia (gromwell golden-rod. P. C. y. Au. 4.) stem branching, hairy: leaves lanceolate, scabrous both sides, tapering, 3-nerved, entire: rays elongated. Leaves bear some resemblance to those of the gromwell.

laevigata (flesh-leaf golden-rod. H. Can. P. y. S. 4) stem erect; smooth: leaves lanceolate,

fleshy, entire, smooth in every part: racemes panicled: peduncles scaly, villose: rays twice as long as the calyx. Tall, strong.—Probably a variety of Maxicana. Grows in salt marshes.

mexicana (New-England. P. y. Ju. ♃.) stem oblique, glabrous: leaves lanceolate, somewhat fleshy, entire, smooth in every part: racemes panicled: peduncles scaly, glabrous: rays elongated. Grows near salt water. Tall, flowers large; radical leaves obovate, long-petioled: bracts numerous, lanceolate, keeled, recurved, thin, scale-like.

viminea (twig golden-rod. P. Can. y. Au. ♃.) stem erect, subpubescent: leaves lance-linear, membranaceous, tapering to the base, glabrous, rough-edged, the lower ones subserrate: rays elongated. Peduncles and branches angular and very rough; bracts lanceolate, recurved, smooth; flowers numerous.

erecta (upright golden-rod. ♃.) stem sub-villose: leaves lanceolate, veiny, glabrous, entire, subpetioled.

macrophylla (Can. ♃.) lower leaves ovate, acuminate, tapering, unequally and sharply serrate, glabrous; cauline leaves tapering to both ends, lanceolate, subsessile, serrate: racemes axillary, peduncled, leafy, of the length of the leaves: calyx oblong, turgid, many-flowered: rays somewhat elongated. About 3 feet high. Intermediate between this genus and the aster.

flexicaulis (zigzag golden-rod. W. A. Y. P. y. Au. ♃.) stem zigzag, glabrous, angled: leaves lanceolate acuminate, serrate, glabrous: racemes axillary: rays half as long again as the calyx. Stem slender, purplish, partly terete and partly angular; leaves numerous on short broad petioles, hardly 2 inches long and half an inch wide, paler beneath, the upper less serrate;

racemes much shorter than the leaves, the upper ones subcapitate.

latifolia (broad leaf golden-rod. W. A. P. y. Au. 4.) stem somewhat zigzag, angular, smooth: leaves ovate, acuminate, strongly serrate, smooth, contracted into winged petioles: racemes axillary. Leaves often 2 inches broad, and sometimes hairy on the under side of the midrib.

virgaurea (mountain golden-rod. Saddle mountain, near Williams College. y. Ju. 4.) stem erect, somewhat zigzag, angular, branching and pubescent above: cauline leaves lanceolate, tapering to both ends, serrate or crenate; lower leaves oval, a little hairy: rays elongated: racemes lateral and terminal. Smith describes several varieties of this species. I have selected those characters which agree with that variety which grows in great abundance on Saddle mountain. I always found the stem 5 or 6-angled and the ray florets 8 or 10.

rigida (hard-leaf golden-rod. P. C. y. Au. 4.) stem corymbed, hairy, scabrous: leaves ovate-oblong, rough, with minute rigid hairs; lower ones serrate, upper ones entire: racemes compact: rays twice the length of the obtuse calyx. Stem 4 or 5 feet high, terete, striate, leafy; leaves a little hoary, radical ones petioled, 12 inches long, broad, acuminate, nerved, the rest 1 to 4 inches long; scales of the calyx round-obtuse, nerved, membranous at the edges.

noveboracensis (star golden-rod. N. C. y. Oc. 4.) radical leaves oval-oblong, long-petioled, rough: stem almost leafless, branched, furrowed, level-top corymbed: rays twice as long as the tapering calyx. Stem 2 or 3 feet high, strong, rough, furrowed, having leaves only at the origin of the flowering branches; radical leaves with shallow serratures; flowers large, resembling in form some asters; calyx scales

narrow, purplish. Grows plentifully along the banks of Connecticut river at the Northampton meadows.

Sonchus, 82.

leucophaeus (sow thistle. O. b-w. Ju. ♄.) peduncles scaly: flowers racemed: leaves runcinate, acuminate: stem wand-panicled.

oleraceus (O. y. Ju. ☉.) peduncles sub-tomentose, umbelled: calyx glabrous: leaves lance-oblong, clasping, denticulate, subsinuate.

pallidus (P. New-England. y. Ju. ♃.) flowers in a compound terminal raceme or panicle: leaves lance-ensiform, clasping, toothed. Lactuca canadensis.

palustris (marsh sowthistle. ♃.) calyx and peduncle hispid, subumbelled: leaves runcinate, sagittate at the base.

arvensis (P. y. Au. ♃.) calyx and peduncles hispid, subumbelled: leaves runcinate, denticulate, cordate at the base: root creeping.

floridanus (P. b. Ju. ♄.) peduncles somewhat scaly: flowers panicled: leaves runcinate-lyrate: petioled, denticulate. Pursh says this is called *the gall of the earth*, and is used for curing the bite of the rattlesnake.

acuminatus (P. b. Au. ♄.) peduncles somewhat scaly: flowers panicled: radical leaves subruncinate; cauline ones ovate, acuminate, petioled, denticulate in the middle.

alpinus (mountain sowthistle, Can. b-w. Au. ♃.) peduncles hirsute, naked: flowers racemed, bracted: leaves runcinate, sagittate at the base, glabrous, glaucous beneath.

Sorbus, 62.

americana (mountain ash. W. A. C. H. P. w. M. ♄.) leaves pinnate; leafets lanceolate, serrate,

glabrous: flowers corymbed. Pursh applies this name to a Canada species, and gives our species the name, *microcarpa*. This shrub or tree grows in very great plenty on Saddle mountain, near Williams College; particularly at the height of about two thousand feet above the level of the college. It is usually from 10 to 20 feet high. The taste and smell of the bark greatly resemble that of the wild cherry tree. It is an excellent tonic.

Sorghum, 32.

saccharatum (broom corn. E. y-g. Au. ☉.) panicle somewhat whorled, spreading: seeds oval, glumes covered with permanent softish hairs. Leaves linear; 6 to 8 feet high. From the East Indies.

vulgare (indian millet: E. ♃) panicle compact, oval, nodding when mature: seed naked, subcompressed.

Sparganium, 91.

ramosum (bur-reed. O. w. Ju. ☉.) the three-sided bases of the leaves concave on the two outsides: the general fruit-stem branched: stigma linear. In water, generally. Flowers in round heads; the staminate heads above the pistillate ones, and considerably the smallest.

simplex (flag bur-reed. A. P. w. Ju. ♃.) three-sided bases of the leaves not concave on the outsides (the concavity commences above the base) the general fruit-stem not branched: stigma linear. This species is much taller than the preceding, and though smaller peduncles are inserted upon the main one, the latter is not itself branched. Near the Patroon's, Albany, it grows in moist ground about 3 feet high.

natans (C. Can. Au. ♃.) leaves decumbent, flat-

general fruit-stem not branched : stigma ovate, short : staminate head subsolitary. Var. *angustifolium*, has very narrow leaves, greatly overtopping the stem, weak, floating. Heads very small.

Sparganophorus, 84.

verticillatus (water crown-cup. New Jersey. p. Au. ♃.) leaves setaceous-linear, whorled : stem generally 1-flowered : egret companulate, 5-toothed. Floating in water.

Spartina, see Limnetis.

Spartium, 78.

junceum (spanish broom. E. J. ♄.) branches opposite, wand-like, bearing flowers at the end : leaves lanceolate, glabrous.

scoparium (scotch broom. E. J. ♄.) leaves ternate and solitary, oblong : flowers axillary : legumes pilose at the margin : branches angular.

Spergula, 59.

arvensis (spurry. O. w. J. ☉.) leaves filiform, whorled : panicle dichotomous ; peduncles become reflexed as the fruit advances to maturity : seed reniform.

saginoides (pearl spurry. New-Jersey. w. J. ♃. or ☉.) leaves opposite, subulate, naked : peduncles solitary, very long, glabrous. Persoon asks, whether this is not a variety of the Sagina procumbens.

Sphaeria, 118.

fragiformis (globule fungus. P.) aggregated like

the acines of a raspberry, rusty-red. Having a strawberry-like appearance.
acuta (P.) solitary, conic, minute.
bombardica (P.) lustered, globular, black, shining.
coronata (P.) imbedded, clustered, ovate-oblong, black, ciliate.
nivea (P.) white, clustered, tubercled, imbedded.

Sphaerophoron, 114.

globiferus (seed-ball lichen) shrubby, branched, cylindric, brownish, smooth.

Sphagnum, 106.

latifolium (peat-moss. O.) leafets closely imbricate, concave, ovate, obtuse.
capillifolium (P.) leaves closely imbricate, lance-ovate, acuminate, flattish.
cuspidatum (P.) leaves remotish, spreading, lanceolate, cuspidate, undalate.

Spigelia, 38.

marilandica (pink-root. P. p. J. 4.) stem 4-sided: leaves all opposite. The most celebrated vermifuge.

Spiloma, 111.

melaleuca (efflorescent lichen) blackish, flat, subconfluent.

Spinacia, 99.

oleracea (spinach. E. J. ☺.) fruit sessile, prickly or unarmed: leaves hastate-sagittate: stem branched. In habit resembles the Chenopodium album.

Spiraea, 62.

1. *Stem more or less woody.*

salicifolia (meadow-sweet, willow hard-hack. O. r. w. J. ½.) leaves lance-ovate, or obovate, serrate, glabrous: flowers in panicled spreading racemes. Var. *alba*, has white petals, and generally the twigs are redish. The small branches are generally killed by frost in the winter, as also of the next species.

tomentosa (steeple bush, purple hardhack. Y. N. H. P. C. A. r. Ju. ½.) leaves lanceolate, unequally serrate, downy beneath: racemes in a crowded, sub-panicled spike. Prof. Ives considers a decoction of the leaves and branches of this plant, as one of the best tonics in use.

opulifolia (nine-bark, snowball hardhack. A. C. P. w. J. ½.) leaves subovate, lobed, doubly toothed or crenate, glabrous: corymbs terminal, crowded: capsules inflated: flowers trigynious.

hypericifolia (john's wort hardhack. P. Can. w. M. ½.) leaves obovate, entire, or toothed at the apex: umbels sessile.

crenata (C. ½.) leaves obovate, acute, tooth-crenate at the apex: corymbs peduncled, crowded.

2. *Stem herbaceous.*

ulmaria (queen of the meadow. E. w. Au. 4.) leaves pinnate, downy beneath; the terminal leafet larger, 3-lobed, the lateral ones undivided; flowers in a proliferous corymb.

aruncus (steeple weed. P. Catskill. w. J. 4.) leaves pinnate, with 2 or 3 pair of leafets: flowers in a panicled spike: styles 3 to 5. Var. *americana*, has very long slender spikes.

Grows from 4 to 6 feet high, north of Judge Benton's on the Catskill.

lobata (P. r. Ju. ♃.) leaves pinnate, glabrous; the odd leafet large, 7-lobed, lateral ones 3-lobed: corymbs proliferous.

trifoliata (ipecac, indian physic, Bowman's root. Can. P. w. J. ♃.) leaves ternate, lanceolate, serrate, subequal: stipules linear, entire, flowers terminal, lax-panicled: calyx tubular, campanulate. Gillenia trifoliata. An excellet emetic. See Barton's Veg. Mat. Med. p. 68.

stipulacea (Western states. w. J. ♃.) leaves ternate, lanceolate, gash-serrate, nearly equal: stipules leafy, ovate, gash-toothed: flowers in a lax panicle: calyx bell-form. Possessing properties similar to the last. Gillenia stipulacea. See Barton's Veg. Mat. Med. p. 75. Dr. Barton remarks, that these two last species never grow in the vicinity of each other; but that one or the other can be found in most parts of North America.

Splachnum, 106.

ampullaceum (umbrella moss. P.) receptacle obconic, obtuse, greenish purple: leaves swelling, lanceolate, serrate, pointed: apophysis blubber-like.

Stachys, 68.

aspera (hedge-nettle, clownheal. O. w-p. Ju. ♃.) stem erect, hispid backwards: leaves subpetioled, lanceolate, acutely serrate, very glabrous: whorls about 6-flowered: calyx with spreading spines. Var. *tenuifolia*, leaves very thin and slender.

Staphylea, 47.

trifolia (bladder-nut. O. y-w. M. ♄.) leaves in threes: racemes pendant: petals ciliate below. A handsome shrub, about 10 or 12 feet high. When in flower, if the germ be cut transversely and examined, it will appear 2 or 3-celled and will contain the rudiments of 15 to 20 seeds. But when the fruit is ripe, it consists of 2 or 3 inflated, adnate, submembranous capsules, each containing 1 to 3 hard small nuts. Therefore the generic characters, given by Linnæus, Smith, Persoon, Pursh, &c. will mislead the student, if examined in the time of flowering only. I have ventured to omit the number of nuts, in the generic description.

Statice, 48.

limonium (marsh rosemary, sea lavender. H. Y. C. b. Au. ♃.) scape terete: panicle much branched: leaves lance-obovate, obtuse, mucronate, glabrous. Very efficacious in dysentaries. See Mott's dissertation. A decoction of the root is an excellent gargle in cankers and ulcerated sore throat. See Cutler's Botanical arrangement, page 432. Mem. Soc. Arts.

armeria (thrift. P. r. Ju. ♃.) scape simple, pilose; flowers capitate: leaves linear, grass-like, flat, obtuse.

Stellaria, 59.

longifolia (long-leaf starwort. H. Y. w. J.) stem decumbent, (or sub-decumbent) leaves lance-linear, opposite, entire, smooth: panicle terminal: calyx 3-nerved, about equalling the petals. Dr. Bigelow informed me, that the

plant, which he called S. graminea in the Boston Florula, is the S. longifolia.

palustris (stitchwort, meadow starwort. W. w. J.) leaves lance-linear, entire, glaucous : flowers panicled : petals 2-parted, larger than the 3-nerved calyx. This plant grows along the south margin of a meadow half a mile north of Williams College. The stem is mostly erect, and the corol is twice as long as the calyx. I could not therefore make it agree with any species credited to this country. It ought to be compared with Smith's drawing of it, which he calls glauca ; but it is not now in my power to do it.

pubera (P. w. M. 4.) pubescent : leaves sessile, ovate, ciliate : pedicels erect : petals longer than the calyx. Flowers large.

Stemonitis, 118.

fascicularis (brittle-bark buff-ball. P.) fascicled, steel-blue : head subturbinate : stem very short.

vesiculosa (Y ?) stemless, globular : seeds rusty-ochre.

Stereocaulon, 117.

ramulosum (knobbed lichen. P.) shrubby, rough, fibrous, pale : branches scattered, diffuse, nearly simple : knobs scattered and terminal, nearly globular, black-brown.

paschale (P.) brittle, shrubby, greenish-grey, granular-scaly : branches short, crowded : knobs flattish, turbinate, scattered, lateral and terminal, at length clustered and convex, olive-brown.

Sticta, 115.

crocata (pit-back lichen. P.) subcoriaceous, sub

depressed, round-lobed, pitted, glaucous-brown, with a citron-mealy margin and tubercles, pits beneath citron: shields black-brown with a glaucous-brown margin.

anthrapsis (P.) cartilage-membranous, round-lobed, pitted-reticulate, greenish-grey, nearly naked and a little ragged beneath with minute white pits: shields lateral, becoming convex, black, with a greenish-grey margin in the young state.

sylvaticus (P.) membranous, ascending, glaucous-brown, somewhat pitted, cut-lobed, ferruginous-brown and villose beneath with white pits: shields nearly marginal, ascending, brown.

Stipa, 30.

avenacea (feather grass. P. J. ♃.) leaves striate, glabrous: panicle spreading, sub-unilateral; branches whorled with branchlets; calyx acute, membranaceous, equalling the glabrous seed; awn naked, twisting.

sericea (New-Jersey. J. ♃.) leaves terete-filiform, very long: panicle effuse, slenderly capillary; corol small, but twice as long as the calyx: awn naked strait. An elegant grass with a silky purplish panicle.

Stylosanthus, 81.

hispida (pencil flower. C. P. y. Au. ♃.) stem pubescent on one side: leaves lanceolate, glabrous: bracts lanceolate, ciliate: heads 2 or 3-flowered. Var. *procumbens*, stem procumbent.

Swertia, 43.

pusilla (false gentian. Whitehills. b. J. ☉.) corol wheelform, twice as long as the calyx: stem simple, 1-flowered: leaves oblong.

corniculata (Can. Western states. g-y. Ju. ☿.) corol bellform, with a deflected horn: leaves ovate: branches short. In swamps.

Symphitum, 37.

officinale (comfrey. E. y-w. J. ♃.) leaves ovate-sublanceolate, decurrent, rugose. Naturalized. Dr. Cutler says, the leaves give a grateful flavor to cakes.

Symplocarpus, see Pothos.

Syringa, 26.

vulgaris (lilac. E. b-p. w. M. ♄.) leaves cordate: flowers in a styrse.

persica (persian lilac. E. b. M. ♄.) leaves lanceolate, entire and pinnatifid.

T.

Tagetes, 85.

erecta (african marygold. E. y. Ju. ☉.) leaves pinnate; leafets lanceolate, ciliate-serrate: peduncles 1-flowered, incrassate, subinflated: calyx angled.

patula (french marigold. E. y. Ju. ☉.) leaves pinnate; leafets lanceolate, ciliate-serrate: peduncles 1-flowered, subincrassate; calyx smooth: stem spreading.

Talinum, 60.

teretifolium (taliny. P. p. Ju. ♃.) leaves cylindric, fleshy: corymbs terminal, peduncled.

Tamarix, 47.

germanica (tamarisk. E. ♄.) flowers decandrous: spikes terminal: leaves sessile, lance-linear.
gallica (french tamarisk. E. J. ♄.) spikes lateral: leaves clasping.

Tanacetum, 85.

vulgare (tansey. E. y. Ju. ♃.) leaves doubly pinnate, gash-serrate. Naturalized. Var. *crispum* (doubly tansey) leaves crispid and dense.

Taxus, 101.

canadensis (dwarf yew, shin-wood. P. Can. Fishkill, New-York. Ap. ♄.) leaves linear, 2-ranked, margin revolute: receptacles of the staminate flowers globose. 1 to 2 feet high, with creeping roots.

Tephrosia, see Galega.

Tetraphis, 106.

pellucida (four-tooth moss. P.) capsule cylindric: leaves ovate, acute, 1-nerved. Stem simple, 1 inch high: lid conic, reddish, thin, half as long as the capsule: teeth rigid, polished, brown.

Teucrium, 67.

canadense (wood-sage, germander. O. r. Ju. ♃.) whitish-hirsute: leaves lance-ovate, serrate, all petioled: stem erect; spikes whorled, crowded: bracts twice as long as the calyx.
virginicum (C. r. J. ♃.) pubescent; leaves ovate-oblong, serrate; upper ones subsessile: stem

erect: spikes whorled, crowded: bracts of the length of the calyx.

Thaelaephora, 117.

caryophyllea (pink fungus. P.) head funnel-form, thin, purplish-brown, fringed, variously jagged or crisped. Substance tough and somewhat woody, chocolate brown. 1 to 3 inches in diameter.

rubiginosa (P.) imbricated, rigid, rusty-brown, smooth both sides, with scattered, largish knobs: soft and velvety. About an inch in diameter.

hirsuta (P.) aggregate, rounded, coriaceous, convex, somewhat zoned, yellowish, shaggy above, smooth and tawny beneath. An inch diameter.

quercina (P.) oblong, coriaceous, rugose, pale flesh coloured; margin somewhat involute, blackish-brown at the back. Two or three inches long, somewhat oval, light flesh coloured, with a dusty surface.

Thalictrum, 66.

Remark. Our species are mostly dioecious or polygamous.

dioicum (meadow rue. O. w-r. M. ♃.) leaves thrice ternate, leafets cordate, many-lobed, very smooth: panicles axillary, filiform: flowers dioecious: petals not longer than the filaments or germs: stigmas almost capillary.—Leaves often 5 to 7-lobed: panicles solitary or in pairs, subumbelled, often the panicle is accompanied by a long peduncled solitary flower; seed ovate-oblong, striate. Whole plant smooth, little umbels few-flowered.

cornuti (A. W. g-w. J. ♃.) leafets 3-lobed, glaucous, smooth: panicles terminal: flowers dioecious: petals 5; roots fibrous. About 3 or

4-feet high: stamens white with yellow anthers; seeds triangular.

polygamum (O.W. Ju. or Au. ♃.) pubescent with slender down: leafets ovate, subcordate and wedge-form, 3-lobed at the apex, subrugose above, subtomentose beneath: panicles terminal; pedicels subumbelled, divaricate: flowers polygamous. Late in autumn some individuals still remain in flower, and make a fine shew with the numerous long white stamens. C. pubescens. Pursh.

rugosum (A. C. P. w. J. ♃.) stem striate: leafets ovate and lanceolate, rugose, veiny, obtuse-lobed: panicle large, terminal, corymbose; flowers erect. Tall. Panicles almost leafless.

purpurascens (P. Can. p. J. ♃.) stem twice as tall as the leaves: leaves compound; leafets roundish, 3-cleft, gashed: panicles nakedish; flowers nodding; stamens purple. Small.

Thea, 64.

bohea (bohea tea. E. M. ♄.) flowers 6 petalled: leaves oblong-oval, rugose. From China and Japan.

viridis (green tea. E. ♄.) flowers 9-petalled: leaves very long-oval. J. C. Lettsom says, this is only a variety of the bohea.

Thelotrema, 113.

pertusus (crust lichen.) warts hemispheric, with 1 or 2 pores. Smith has removed this species to the genus endocarpon.

Thesium, 43.

umbellatum (false toadflax. O. w-g. J. ♃.) erect: leaves lance-oval: fascicles of flowers corymb-terminal. Nuttall has changed this generic

name to Comandra. With all due deference to the opinion of this learned botanist, I would ask, whether he has, in this case, sufficient reason for rejecting an established name? I know R. Brown says, that our species resembles the Santalum, an East India plant, with a single species in the genus. But why not rather improve the generic character, and retain the old name notwithstanding?

Thlaspi, 74.

bursa-pastoris (shepherd's purse. O. w. M. ☺.) hirsute: silicles deltoid-obcordate: radical leaves pinnatifid.

campestris (yellow-seed, false-flax, mithridate mustard. O. J. ☺.) silicle obcordate, inflated, glandular-punctate: cauline leaves sagittate, toothed. Very troublesome in flax fields, and was probably introduced with flax-seed.

arvense (penny-cress. C. P. Detroit. J. ☺.) silicles suborbicular, compressed, smooth: leaves oblong, toothed, glabrous.

Thuja, 96.

occidentalis (arbor-vitae, false white-cedar. A. Can. P. M. ♄.) branchlets 2-edged: leaves imbricate 4 ways, rhomb-ovate, close-pressed, naked, tubercled: strobiles obovate; inner scales truncate, gibbous below the apex.

Thymus, 79.

serpyllum (mother of thyme. E. b-p. J. ♄.) flower heads: stem creeping: leaves flat, obtuse, ciliate at the base.

vulgaris (thyme. E. b-p. J. ♃. ♄.) erect: leaves ovate, and linear, revolute; flowers in a whorled spike.

lanuginosus (lemon thyme. E. 4. ½.) flowers in heads: stem creeping, hirsute: leaves obtuse, villose.

TIARELLA, 58.

cordifolia (miter-wort, gem-fruit. W. C. P. A. w. M. 4.) leaves cordate, acute-lobed, toothed: teeth mucronate: scape racemed. Resembles the Mitella diphylla.

TILIA, 64.

glabra, (basswood, limetree. O. y-w. Ju. ½.) leaves round-cordate, abruptly acuminate, sharply serrate, subcoriaceous, glabrous: petals truncate at the apex, crenate: style about equalling the petals: nut ovate, subcordate. Large tree; wood soft and white. T. americana.

pubescens (crop-ear basswood. O. y-w. Ju. ½.) leaves truncate at the base (one lobe cropped) oblique, acuminate, tooth-serrate, pubescent beneath: panicle dense-flowered: petals emarginate, about equal to the style: nut globose, smooth. Resembles the last so nearly, that farmers rarely observe, that there are two species.

TILLAEA, 36.

ascendens (pigmy weed. Y. w.) stem ascending, rooting at the lower joints: leaves connate, somewhat sheathing. Very minute. A new species. Found on the Housatonic by Prof. Ives, in the summer of 1816. It was at first taken for the T. connata; but on a strict examination, Dr. Ives was convinced that it was not described. I drew up this description from a specimen, which I received from Dr. I. last all. I would have preferred a specific des-

cription given by himself; though I believe this to be sufficiently distinctive.

Timmia, 108.

polytrichoides (many-haired moss.) leaves lance-linear, serrate, spread: capsule drooping, on a receptacle: lid convex, depressed in the centre. Smith says, he cannot consider Timmia an admissable genus, as it is not well distinguished from Bryum.

Tofielda, 25.

pusilla (scotch asphodel. Can. g-w. J. 4.) glabrous: leaves short: scape filiform; spike few-flowered, globular: little calyxes adnate to the rachis: capsule globose. Mountain swamps.

glutinosa (Can. 4.) scape and pedicels glutinous-scabrous: spike with a few alternate fascicles; capsule egg-form, twice as long as the calyx.

Tolpis, 83.

barbata (hawksbeard. E. S. ☺.) leaves oblong, toothed: peduncles 1-flowered.

Tradescantia, 48.

virginica (spiderwort. P. b. p. M. 4.) erect: leaves lanceolate, elongated, glabrous: flowers sessile; umbel compact, pubescent. Cultivated in gardens.

Tragopogon, 81.

porrifolium (vegetable oyster, goat-beard, salsify. E. p. Ju. ☌.) calyx longer than the rays of the corol; the corollets very narrow, truncate; peduncles incrassate.

Trichodium, 31.

laxiflorum (thin-grass. O. M. 𝔙.) culm erect, striate, purplish : leaves involute, subulate ; upper ones flat, nerved, margin scabrous ; sheaths roughish : panicle capillary, lax, spreading ; branches whorled about in threes : glumes lanceolate. 12 to 18 inches high : the panicle is very thin and delicate. Usually grows in dry fields.

scabrum (C. P. Ju. 𝔙.) culm glabrous, geniculate at the base, with erect branches : leaves lance-linear, striate, flat, margin scabrous ; stipule 2-cleft, acute ; sheaths striate, glabrous : panicle very branching, spread, with whorled, zigzag, branchlets.

Trichophorum, 29.

cyperinum (light-hair, clump-head grass. O. Ju. 𝔙.) culm 3-sided, leafy, hollow : panicle terminal, more than decompound, proliferous, peduncles and pedicels scabrous ; spikes glomerate, 3 or 4 in a head, or more, ovate, obtuse. 3 to 5 feet high. Very common in wet meadows and swampy ground. Eriophorum cyperinum.

Trichostema, 69.

dichotoma (blue curls. Y. N. H. P. b. Au. ☉.) leaves rhom-lanceolate : branches flower-bearing, 2-forked : stamens very long, blue, curved. 6 to 8 inches high. Gives out a scent, precisely resembling that of the spikenard. Var. *linearis*, has linear leaves.

Trichostomum, 107.

pallidum (hair-mouth moss. P.) stem simple ve-

ry short : leaves capillary, sheathing : capsule cylindric : lid conic ; calyptre halved.

Trientalis, 53.

europaea (chick-wintergreen. W. H. N. A. C. P. w. Ju. ♃.) leaves oval ; stem naked below, with a tuft of oval leaves at the top. Var. *americana*, has lanceolate leaves, tapering to both ends. About 3 to 5 inches high. Though in the generic description it is said the stamens vary in number : in the specimens about Williams College much the largest proportion have the true number.

Trifolium, 80.

pratense (common red clover. O. r. M. ♃.) ascending, smoothish ; leafets ovate, subentire : stipules awned : spikes dense, ovate : lower tooth of the calyx shorter than the tube of the corol, and longer than the other teeth.

repens (white clover. O. w. M. ♃.) creeping : leafets ovate-oblong, emarginate, serrulate : flowers in umbelled heads : teeth of the calyx subequal : legumes 4-seeded. Foreign botanists often call these two species introduced plants ; but I know not on what authority. I have never seen a place of a few miles extent where they do not grow, however wild the country.

arvense (rabbit-foot, field clover. O. w. Ju. ☉.) erect, branching, villose ; leaves lance-linear, serrulate at the apex : stipules connate, subulate at the apex : spikes villose, oval-cylindric : teeth of the calyx setaceous, longer than the corol. Grows in dry pastures or barren fields.

stoloniferum (buffalo clover. Western part of the state of New-York. w. J. ♃.) sending off suckers from the base of the stem : leaves obovate,

unequally serrate on the sides, and toothed at the end: teeth of the calyx narrow-lanceolate or subulate, longer than the tube: florets large, in a head-form spike. This description I drew from a dried specimen in the herbarium of Dr. T. R. Beck; being unable to procure any other.

pensylvanicum (P. r. J. 4.) ascending: stem very branching, zigzag: leafets oval-ovate, obtuse, entire: stipules awned: spikes ovate-cylindric, dense, solitary: lower tooth of the calyx shorter than the tube of the corol. Pursh says, this is known by the name of Buffalo clover. This is one of the many instances, where P. makes his popular remarks at random. Want of fidelity, as Mr. Nuttall calls it, has induced many to speak contemptuously of Pursh's flora. This fault is, to be sure, a great objection to his remarks at the end of some species. But after all, take his book as it is, it affords more aid in determining North American plants, than all other works extant. "Justitia fiat," &c.

reflexum (P. r. J. 4.) procumbent, pubescent: leaves obovate: stipules oblique, cordate: heads many-flowered; flowers pedicelled, at length all reflexed: legumes about 3-seeded.

procumbens (hop clover. P. y. J. ☺.) procumbent: stem hairy: leafets obovate, submarginate, glabrous: stipules short, lanceolate, acute: spikes oval, imbricate: banner deflexed, furrowed, permanent.

campestre (C. P. y. ☺.) spike ovate, imbricate: banner deflected, permanent: leafets lance-ovate, middle one petioled: stem subdiffuse; branches decumbent.

agrarium (P. y. J. ☺.) erect, subpubescent; leafets lance-wedgeform, obtuse, middle one sessile: stipules lanceolate, acute: spikes oval, imbricate: banner deflexed, permanent: teeth of the calyx subulate, glabrous, unequal.

Trifolium, see Melilotus.

Triglochin, 53.

maritimum (arrow-grass. Y. H. g. Ju. 4.) capsules short, ovate, furrowed, 6-celled, rounded at the base: leaves semicylindric: root tuberous. Grows plentiful, about 12 or 14 inches high, in the salt meadows about New-Haven.

palustre (Onondaga salt springs, g. Ju. 4.) triandrous: capsules linear, tapering to the base, 3-celled, smooth; stigmas erect: leaves radical, 2-ranked, sheathing, linear, channelled, smooth: roots fibrous. About 6 inches high.

triandrum (Can. P.) triandrous: flowers 3-cleft, short-pedicelled: capsules roundish-triangular: leaves subsetaceous, almost as tall as the spike or scape.

Trigonella, 80.

foenum-graecum (funegreek. E. ☺.) legumes sessile, solitary, strait, erectish, subfalcate, acuminate: stem erect: leaves wedge-oblong.

Trillium, 52.

erectum (wake-robin. W. A. N. P. p-w. M. 4.) peduncles erect or erectish, with the flowers a little nodding: petals oval, acuminate, spreading, equalling the calyx: leaves rhomboid, acuminate, sessile: peduncle about 3 inches long. Var. *atropurpureum*, petals large, dark purple. Var. *album*, petals smaller, white; germ red. 12 to 18 inches high. Leaves often 3 or 4 inches broad.

cernuum (nodding wake-robin. Y. H. C. P. g. & w. M. 4.) peduncles recurved, shortish: petals lanceolate, reflexed, the size and form of

the calyx-leaves : leaves rhomboid, abruptly acuminate, very short petioled. About half the size of the last species. Petals dull brownish white, striped with green.

pictum (smiling wake-robin. W. C. P. w. & r. M. 4.) peduncles erectish : petals lance-ovate, acuminate, recurved, almost twice as long as the narrow-leaf calyx : leaves ovate, acuminate, rounded at the base, abruptly petioled.—Very abundant in moderately dry woods north of Williams College. An elegant species.

pendulum (P. w. M. 4.) peduncles erect, with the flower a little nodding : petals ovate, acuminate, spreading, longer than the calyx : leaves rhomboid, acuminate, sessile. Smaller than the erectum, germ reddish, anthers and styles yellow, flower dull white. I took this description from Smith. He says Pursh has given the characters of the erectum for this species. But I never saw the pendulum.

grandiflorum (P. w. M. 4.) peduncles a little curved and the flowers a little nodding : petals lance-spatulate, erect at the base, limb spreading, much larger than the calyx : leaves broad rhomb-ovate. Berries dark purple.

sessile (P. p. M. 4.) flowers sessile, erect ; petals lanceolate, erect, twice as long as the calyx : leaves sessile, broad-ovate, acute.

pumilum (dwarf wake-robin. P. r. M. 4.) peduncles erect ; petals scarcely longer than the calyx : leaves oval-oblong, obtuse, sessile.

Triosteum, 41.

perfoliatum (fever-root, horse-ginseng. C. p. J. 4.) leaves oval, acuminate, connate : flowers sessile, whorled. 2 to 4 feet high ; berries purple or yellow. Very valuable as a cathartic and emetic. See Bigelow's Medical Botany and Barton's Vegetable Materia Medica.

Triticum, 31.

hybernum (winter wheat. E. J. ♄.) calyx-glume 4-flowered, tumid, even, imbricate, abrupt, with a short compressed point: stipule jagged: corols of the upper florets somewhat bearded. There are several varieties of this species, which are induced by culture.

aestivum (summer wheat. E. J. ☉.) calyx 4-flowered, tumid, smooth, imbricated, awned.—Smith says this may be a variety of the last.

compositum (egyptian wheat. E.) spike compound; spikelets crowded, awned.

repens (wheat-grass, couch-grass. O. J. ♃.) calyx acuminate, many-nerved, 5-flowered; flowers pointed: leaves flat: root creeping.

Trollius, 67.

laxus (globe-flower. C. P. y. M. ♃.) petals 5, obtuse, spreading: nectaries shorter than the stamens. T. americanus. Petals always, perhaps, 5, obovate: capsules short, abrupt, crowded with the elongated style.

Tropaeolum, 55.

majus (nasturtion, indian cress. E. y. & r. Ju. ☉. ♃.) leaves peltate, sub-repand: petals obtuse, some of them fringed.

Tubercularia, 119.

vulgaris (tubercle fungus. P.) aggregate or scattered, bright red, ridgy or wrinkled, with a thick pale base.

rosea (P.) scattered, loose, irregularly globose, rose-coloured. Bright pink little masses, which dissolve in rainy weather. This Smith gives as its best distinction from some lichens.

TULIPA, 50.

suaveolens (sweet tulip. E. M. ♃.) small: stem 1-flowered, pubescent: flower erect: petals obtuse, glabrous: leaves lance-ovate.

gesneriana (common tulip. E. M. ♃.) stem 1-flowered, glabrous; flower various-coloured, erect: petals obtuse, glabrous: leaves lance-ovate.

TURRITIS, 74.

hirsuta (tower mustard. O. w. M. ☺. or ♃.) leaves all hispid; cauline ones clasping: silique 4-angled. Pursh describes a variety, probably, of this species, he calls it *ovata*, pubescent: radical leaves petioled, ovate, toothed, obtuse; cauline ones clasping, oblong, serrate acute.

laevigata (P. w. M. ☺. or ♃.) leaves glabrous; radical ones obovate, serrate; cauline ones lance-linear, entire, clasping. About 12 inches high.

TUSSILAGO, 86.

farfara (colt's foot. W. A. P. N. y. Ap. ♃.) scape single-flowered, scaly: leaves cordate, angular, toothed, downy beneath. The flower appears long before the leaves.

frigida (mountain colt's foot. New-Hampshire, Vermont. y. M. ♃.) scape many-flowered, corymbed, bracted: leaves triangular, cordate, with deep triangular teeth, downy beneath.

TYPHA, 91.

latifolia (cat-tail, reed-mace. O. Ju. ♃.) leaves linear, flat, slightly convex beneath: staminate and pistillate aments close together.

angustifolia (P. Ju. ♃.) leaves linear, channelled, semicylindric below and flattish above: staminate and pistillate aments a little separated. Not so large as the last species.

U.

Ulex, 78.

europeus (furze. E. M. ♄.) leaves lance-linear, villose: bracts ovate lax; branchlets erect.

Ulmus, 44.

americana (elm, white elm. O. g-p. Ap. ♄.) branches smooth: leaves oblique at the base, having acuminate serratures a little hooking: flowers pedicelled: fruit fringed with dense down. A very large durable tree, with the branches gradually spreading, when it grows in open fields, so as to form a fan-form top. Var. *pendula*, has hanging branches and smoothish leaves. Rafinesque says this is a distinct species. See Florula Ludoviciana, page 115.

fulva (slippery elm, red elm. O. Ap. ♄.) branches scabrous, whitish: leaves ovate-oblong, acuminate, nearly equal at the base, unequally serrate, pubescent both sides, very scabrous: buds tomentose with very dense yellowish wool; flowers sessile. May always be known by chewing the bark, which is very mucilaginous.

nemoralis (river elm, grove elm. New-England. Ap. ♄.) leaves oblong, smoothish, equally serrate, nearly equal at the base: flowers sessile.

Ulva, 110.

Remark. The species examined by Muhlenberg are all membranaceous.

purpurea (glue-seaweed. P.) lance-oblong, flat, margin entire, undulate.

lactuca (P.) several fronds from the same base, distinct, oblong, flat, somewhat undulate, tapering below, dilated upwards, torn.

lubrica (P.) crowded, in tufts, oblong, convolute, inflected, undulate, rugged, intersecting or anastomosing, very thin, lubricous.
intestinalis (P.) tubular, simple, green.
compressa (P.) tubular, branched, compressed.

Uniola, 32.

paniculata (sea rush-grass. P. Ju. ♃.) panicle long; spikelets subsessile: calyx many-valved: flowers glabrous on the keel: leaves convolute: culm very tall. On the sea-shore.
latifolia (P. J. ♃.) panicle lax: spikelets all long-pedicelled: calyx 3-valved: flowers monandrous, subfalcate, hairy on the keel: leaves broad, flat.
spicata (C. Ju. ♃.) flowers in a thyrse: spikelets approximate, close-pressed, about 6-flowered, awnless: leaves convolute-subulate, rigid, alternate, pointing 2-ways: culm erect, glabrous. Festuca distichiphylla.

Uraspermum, see Myrrhis.

Urceolaria, 114.

panyrga (pitcher-shield lichen. P.) effuse, granular-warty, pure white: warts clustered, bearing shields which are glaucous-mealy, with convex entire margins.
bryophylla (P.) effuse, tatarous, wrinkly-plaited, granular, uneven, greyish; with a slightly lobed leafy circumference: shields glaucous-black, with a flattish disk and nearly distinct margin.

Uredo, 118.

frumenti (blight, grain-rust. O. J. ☉.) linear, oblong, black brown, growing from under the cu-

ticle of culms through the pores. See Sir Joseph Bank's essay on blight, with a plate by F. Bauer.

flava (yellow rust. O. J. ☺.) globular, yellow, growing from under the cuticle of leaves and stems which have a thickish soft cellular integument. It often occurs on the stems of elder and swamp-willowherb.

segetum (smut. O.) black, powdery, in the spikelets of grasses. Is not this rather a morbid swelling, and final disintegration of parts?

URTICA, 92.

dioica (common nettle. O. J. ♃.) leaves opposite, cordate, lance-ovate, coarsely serrate, flowers dioecious: spikes panicled, glomerate, in pairs, longer than the petioles.

procera (O. Ju. ♃.) leaves opposite, cordate, lance-ovate, serrate; petioles ciliate: flowers dioecious: spikes somewhat branched, glomerate in pairs, equalling the petiole. Not so common as the last; which if examined before full maturity, may be mistaken for this.

gracilis (N. Can. Au. ♃.) leaves opposite, lance-ovate, nakedish; leaves and petioles hispid: racemes in pairs. Pursh says this and the last species are the same. Perhaps they are; but if so, the gracilis at Northampton, is a very slender and delicate variety.

divaricata (O. Ju. ♃.) leaves alternate, broad-ovate, acuminate, serrate, smoothish; petioles long, ciliate: panicles axillary, solitary, spread-subpalmate, very branching, longer than the petiole (in maturity) stem furnished with stings.

pumila (stingless nettle. O. Ju. ☺.) leaves opposite, ovate, acuminate, 3-nerved, serrate; lower petioles as long as the leaves: flowers monoecious, triandrous; in corymbed heads, shorter than the petioles. Stem smooth and

shining ; when in deep shades the stem is pellucid. Adesia trinerva. Raf.

urens (dwarf stinger. N. A. P. II. J. ☺.) leaves opposite, oval, about 5-nerved, sharply serrate : spikes glomerate, in pairs.

capitata (C. P. Can. J. ♃.) leaves alternate, heart-ovate, acuminate, serrate, 3-nerved, twice as long as the petiole : glomerules spiked ; the spikes are solitary, shorter than the leaves, leafy above : stem naked.

canadensis (canada nettle. O. Ju. ♃.) leaves alternate, heart-ovate, acuminate, serrate, hispid both sides : panicles axillary, mostly in pairs, spread-branched ; the lower staminate ones longer than the petioles, upper pistillate ones elongated : stem covered with stings. 5 to 6 feet high.

whitlowi (albany hemp. A. Au. ♃.) stem simple, terete, and sub-glabrous at the base ; towards the top it is 5 to 8-grooved, and covered with reversed stings : leaves serrate, punctate (with deep green specks or spots) acuminate, long-petioled, alternate ; lower ones broad-oval, with the base wedge form ; uppermost ones nearly opposite, heart-ovate : " panicles peduncled ; staminate ones axillary dichotomous, longer than the petioles ; pistillate ones terminal : capsules orbicular-compressed, mucronate" : root tuberous-fusiform, often with tuberous branches nearly at right angles. Stem 5 or 6 feet high.

Dr. Muhlenberg examined this plant and named it in honor of its discoverer, Mr. Charles Whitlow ; whose opinion, that it may be advantageously cultivated as a substitute for hemp, seems to be confirmed by the observations of McKinzie. Dr. Withering also observed, long ago, that he had no doubt some species of the nettle might be used as a substitute for flax.

Several botanists consider the whitlowi as a variety of the canadensis. I have therefore been particular to give a full description; which I took from several living specimens on an island near Albany, and compared it with those cultivated in Mr. G. Webster's garden. That part of the description relating to the fructification, I translated from Dr. Muhlenberg's description.

Whether it is a distinct species or only a variety, will not affect the question of its usefulness. And it is to be hoped, that agriculturalists will make more extensive experiments.

USNEA, 116.

angulata (flat-stem tree-moss. O.) stem angled, flattish, naked; whole frond greenish-blue: orbs of the colour of the frond. Very strong and woody. I do not know that this is Muhlenberg's angulata. But as I can find no description of this common Usnea, found every where on trees, I have described it under this name. Perhaps it may be a pistillate lichen, of a described species.

florida (spreading-tree moss. O.) erect, cylindric, rough, greenish-grey, with horizontal fibres: branches scattered, somewhat fastigiate, nearly simple: orbs terminal, large, greenish-white, radiated with fibres: lateral warts or knobs, palish yellow.

plicata (long tree-moss. Y. Catskill Mt. P. Ware (Mass.) and on most high mountains, on evergreen trees.) palish, filamentous, hanging down 6 to 20 inches long, cylindric, branched, entangled: orbs greenish-white, edged with radiating fibres: lateral knobs yellowish.

hirtus (P.) greenish-grey: branches tapering, crowded, fibrellous, rough-mealy: orbs minute, white, radiate: knobs pale reddish-yellow.

strigosus (P.) branches scattered, short, rigid,

every where much crowded: orbs very broad, pale flesh-colour, slightly lobed, tooth-rayed.

trichodeus (P.) very tender, filamentous, cylindric, diffuse, pale-white: filaments capillary, branched, fibres mostly inclining one-way: orbs pale-white, with a thin, inflated, naked, entire margin.

Utricularia, 26.

vulgaris (bladder-wort. O. y. J. 2/.) spur-nectary conic, upper lip of the length of the palate, reflexed to the sides: scape strait, few-flowered. Scape generally proceeding from the junction of several horizontal branches, which lie in the mud or float on the surface of water. The leaves are capillary, generally bearing small bladders.

cornuta (leafless bladder-wort. P. Can. Plainfield, Mass. y. Ju. 4.) spur-nectary subulate, lengthened out longer than the corol, nearly vertical, acute: lower lip of the corol broad, 3-lobed: scape with 2 nearly sessile flowers at the top: no leaves at the base. In the marsh on Crooked lake, Plainfield (Mass) it grows so plentifully as to give the lake the appearance of being bordered with yellow. I saw thousands there still in flower in September.

sacchata (C. P. p. Au. ☺.) scape 1 to 3-flowered: lower lip of the corol 3-lobed, lateral lobes cowled on the under side; palate large and prominent: spur-nectary compressed, keeled, subacuminate, close-pressed to the corol, which is upside down and covers the spur with its reflexed margins: upper lip almost round. This species was discovered by Mr. Le Conte. But Nuttall says, it is the *purpurea* of Walter.

gibba (New Jersey. y. Ju.) spur-nectary gibbous: divisions of the corol rounded: scape generally 1-flowered. Very small.

subulata (Can. P. New Jersey. y. Ju. ☺.) spur-nectary obtuse, shorter than the under lip: scape about 2-flowered. Flowers small.

setacea (C. New Jersey. P. y. J.) leafless; scape minute, terete, slenderly setaceous, 2 or 3-flowered, rooting; flowers on longish peduncles: spur-nectary longish. It appears that Mr. Le Conte sometimes found 6 or 7 flowers on a scape; and Mr. Elliott says the lower lip of the calyx is submarginate. Pursh says this is the subulata; but Nuttall says it cannot possibly be that.

minor (New Jersey. y. Au. ♃.) spur-nectary gibbous, keeled: throat of the corol open. Flowers small.

ceratophylla (C. y. Ju.) leaves at the base of the scape cylindric, capillary, divided, branched at the extremities: scape producing 6 to 10-flowered racemes: lower lip of the corol with 3 retuse lobes: spur compressed. The largest of the species.

Uvularia, 51.

1. *Capsules 3-cornered; stigmas reflexed.*

perfoliata (bellwort. O. y. M. ♃.) leaves perfoliate, oval, obtuse (lance linear or oval-oblong, in the young state) corol bell-liliaceous, scabrous or granular within: anthers cuspidate.

sessilifolia (O. y. M. ♃.) leaves sessile, lance-oval, becoming glaucous beneath: petals flat, smooth within: capsule stiped (raised above the receptacle on a little stem): stem glabrous.

lanceolata (P. Can. y. J. ♃.) leaves perfoliate, oblong, acute; petals smooth within: anthers obtusish: nectaries roundish. Flowers large. U. grandiflora.

flava (New-Jersey. y. M. ♃.) leaves perfoliate, oval-oblong, obtuse, undulate at the base: co-

rol tapering to the base, scabrous within: anthers cuspidate. Is not this description drawn from the U. perfoliata, which was gathered in the earliest state of flowering? Excepting the tapering base of the corol, I am sure we can always find all parts of this description in the U. perfoliata, for several days after the flowers begin to expand; and I can hardly find it excluded by *basi attenuata*.

2. *Capsules subglobose; stigmas very short.*

amplexifolia (Can. P. g-w. M. 4.) leaves clasping: pedicels solitary, twisted-geniculate in the middle. Streptopus distortus.

rosea (W. Can. P. p. M. 4.) leaves clasping, serrulate-ciliate: anthers short, 2-horned. Very abundant in a deep ravine west of Williams College. It is from 12 to 18 inches high, with purple flowers speckled with deeper purple.

lanuginosa (P. y-g. J. 4.) whitish-woolly: leaves sessile, subcordate at the base, acuminate; pedicels in pairs, meeting upon a short general pedicel. Flowers large, berries red.

V.

Vaccinium, 57.

Remark. President Smith remarks upon the removing of this genus to the 10th class in a way, which strongly implies his disapprobation. He says Pursh removed it; not recollecting at the moment that Persoon removed it about ten years before Pursh wrote. There are about 25 species in North America, not one of them octandrous; and barely three octandrous species in Europe. Ought we therefore to make our 25 species into anomalies, on account of the European species? I presume Dr. Smith would not object to

taking off the Oxycoccus genus, should he become acquainted with all our species of the old genus Vaccinium, growing in their native wilds. See Rees' Cyclopœdia.

stamineum (squaw whortleberry. O. w. M. ♄.) leaves oval, acute, entire, glaucous beneath: pedicels solitary, axillary, filiform: corol spreading bell-form; divisions oblong, acute: anthers exsert, awned on the back: berry pear-form. About 2 or 3 feet high. Var. *album*, has the nerves and veins of the leaves hairy and the berry globose. Pursh makes this variety a distinct species; but Smith says it can hardly be called a variety. Berries of this species are large and light green, when ripe; very soft and juicy within, with a tough skin.

dumosum (bush whortleberry. C. P. w. J. ♄.) branchlets, leaves and racemes a little hispid, bedewed with resinous specks; the leaves oblong-obovate, acute at the base, mucronate, entire, both sides coloured alike: racemes bracted, pedicels short, axillary, subsolitary, 2-bracted near the middle: corol bell-form, divisions roundish, including the anthers.

frondosum (blue whortleberry, P. A. W. w. M. ♄.) leaves oblong-obovate, obtusish, entire, glabrous, glaucous beneath, bedewed with many resinous dots: racemes lax, bracted; pedicels long, filiform, bracted; the bracts linear: corol ovate-bellform, with acute divisions, and enclosing the anthers. Var. *lanceolatum*, having lanceolate leaves acute at both ends. About 3 feet high, berries large and blue.

resinosum (black whortleberry. O. p. M. ♄.) leaves slender, petioled, oblong-oval, mostly obtuse, entire, bedewed with resinous specks beneath: racemes lateral, one-sided; pedicels short, somewhat bracted: corol ovate-conic, 5-cornered. 1 to 4 feet high; berries black. Much taller in woods than in open fields.

corymbosum (giant whortleberry. O. w. M. ♄.) flower-bearing branchlets almost leafless: leaves oblong-oval, acute at both ends, mucronate, subentire; subtomentose beneath and hairy both sides when young, but glabrous above and a little hairy at the veins beneath when mature; racemes short, sessile, with scaly bracts: corols cylindric-ovate: calyx erect: style somewhat exsert. In wet ground, it grows very large; near Albany it grows 12 feet high and 2 or 3 inches in diameter. Berries black. Var. *amœnum*, has the style not exsert, and the racemes are crowded, corol cylindric and the calyx reflexed. The twigs are reddish, flowers large with a reddish tinge. Var. *virgatum*, has the leaves a little serrulate, glabrous, racemes corymbed, corol cylindric with the throat closely pressed together, divisions very short, calyx reflexed and style not exsert. Flowers reddish. Var. *fuscatum*, has the leaves a little serrulate, glabrous, corymbed racemes terminal, pedicels long and nodding, corol cylindric with short erect divisions, style hardly exsert. Flowers striped with red, calyx brown. Pursh and others make these varieties distinct species. But I have followed Dr. Smith, who, after critically examining Pursh, Michaux and others, and comparing the specimens, has judged them to be but varieties.

ligustrinum, (prim whortleberry. P. p. M. ♄.) branches angled: leaves subsessile, erect, lanceolate, mucronate, serrulate, veiny, hairy: fascicles nearly sessile in sessile tufts: corol oblong-ovate. Veins of the leaves often purplish, berries black.

tenellum (dwarf whortleberry. P. Whitehills. r-w. M. ♄). branches angled, green: leaves sessile, lance-ovate, mucronate, serrulate, shining both sides; flowers in crowded, mostly sessile fascicles: corols ovate.

gaultherioides (wintergreen whortleberry, White-

hills. Ju. ♄.) prostrate : leaves obovate, entire : flowers subsolitary : berries oblong, crowned with the style. Very small. A new species discovered by Bigelow and Boot.

vitis-idaea (bilberry. Can. New-England. w-r. M. ♄.) low ; stem creeping, branchlets erect : leaves obovate, emarginate, revolute, subserrulate, shining above, punctate beneath : racemes terminal, nodding : corol bell-cylindric. Sometimes tetandrous.

Vaccinium, see Oxycoccus.

VALERIANA, 27.

phu (valerian. E. 4.) cauline leaves pinnate; radical ones undivided : stem smooth.

Valeriana, see Fedia.

VALLISNERIA, 97.

spiralis (tape grass. Y. Fishkill (New-York) P. Au. 4.) leaves floating, linear, obtuse, serrulate at the summit, tapering to the base : peduncle of the pistillate flower long and spiral ; of the staminate, short and erect. Var. *americana*, when in shallow water has the pistillate peduncle erect. But as this variety has a spiral peduncle in deep water, perhaps it is not even a variety.

VARIOLARIA, 112.

faginea (bitter small-pox lichen. O.) crust cartilaginous, rugged, polished, greyish, bordered with brown : receptacles prominent, hemispheric, mealy, very white ; with a pale flattish, and at length naked disk. Very bitter a little after chewing it.

discoidea (flat-cup lichen. P.) crust cartilaginous, cracked, somewhat rugged, polished, greyish, bordered with brown; at length powdery. Receptacles flattish, mealy, very white, at length concave, depressed, with a dilated torn border. Very white on old trees in wet weather. No proper receptacle has been found of a different colour from the frond. This is one of the genera, which Sprengel considers as only the rudiments of other genera, in an immature state.

VARATRUM, 527.

viride (itch-weed, indian poke, white hellebore. O. g. J. ♃.) flowers in terminal racemed-panicles; bracts of the branches lance-oblong, the bract of the flowers longer than the subpubescent peduncles: leaves broad-ovate, plaited, many-nerved. Useful in rheumatisms and many cutaneous eruptions. Doct. Cutler says, crows may be destroyed by boiling indian corn in a decoction of this plant, and strewing it in corn fields.

luteum (blazing star. P. Connecticut. y-w. M.♃.) flowers in a simple raceme: leaves sessile, narrow-lanceolate: root bulbous. I have seen a dried specimen of this species from some part of Connecticut; but I do not at this moment recollect from what town.

VERBASCUM, 39.

thapsus (mullein. O. y. J. ☿.) leaves decurrent, downy both sides: stem generally simple, tho' sometimes branched above: flowers in a cylindric spike. When botanists are so infatuated with wild theory, as to tell us the mullein was introduced, they give our youngest pupils occasion to sneer at their teachers.

blattaria (sleek-mullein. A. N. C. P. w-y. J. ☿.) leaves glabrous, tooth-serrate; lower ones oblong-obovate, upper ones heart-ovate, clasping: pedicels solitary, 1-flowered. This description differs widely from that given by Pursh. But it agrees with scores which I have examined about Albany and Troy.

lychnitis (P- r. w. J. ☿.) leaves ovate, acute, crenate, white-downy beneath: spikes lax, lateral and terminal.

VERBENA, 68.

hastata (vervain, simpler's joy. O. p. w. Ju. ♃.) erect, tall: leaves lanceolate, acuminate, gash-serrate, lower ones sometimes gash-hastate: spikes linear, panicled, subimbricate. Var. *pinnatifida*, has the leaves gash-pinnatifid, coarsely toothed.

urticifolia (nettle-leaf vervain. O. w. Ju. ♃.) erect, subpubescent: leaves ovate, acute, serrate, petioled: spikes filiform, with flowers a little separate, axillary and terminal. Both of these species grow from 3 to 5 feet high. Generally about garden fences and old fields.

angustifolia (pigmy vervain. Y. C. P. b J. ♃.) low, erect: leaves lance-linear, tapering to the base, thinly serrate, with channelled veins: spikes filiform, solitary, terminal or axillary. About a foot high, in the dry fields about New Haven.

spuria (C. Y. P. b. Ju. ♃. ☿.) stem decumbent, with spreading branches: leaves in many-cleft divisions: spikes filiform: bracts exceeding the calyx. Very abundant 7 or 8 miles about New Haven.

VERBESINA, 87.

sigesbeckia (crown-beard. P. y. Ju. ♃.) stem

winged : leaves opposite, lance ovate, acuminate at both ends, sharply serrate : panicle brachiate : flowers in fascicles on the ends of the branches.

virginica (P. w. Ju. 4.) stem narrow-winged : leaves alternate, broad-lanceolate, subserrate : corymb compound : calyx oblong, pubescent. Ray florets 3 or 4.

Vernonia, 83.

noveboracensis (flat-top. O. p. Au. 4.) tall : leaves thick-set, lanceolate, serrate, rough : corymb fastigiate : scales of the calyx filiform at the apex. 4 or 5 feet high.

praealta (C. New England. P. r. Au. 4.) stem tall, angled, thickly pubescent : leaves thick-set, lanceolate, acutely serrate, pubescent beneath : corymb fastigiate : scales of the calyx ovate, acute, awnless.

Veronica, 26.

officinalis (speedwell. A. Y. C. P. b. M. 4.) spikes lateral, peduncled : leaves opposite, obovate, hairy : stem procumbent, rough haired.

serpyllifolia (Paul's botany, smooth speedwell. O. b. M. 4.) racemes terminal, subspiked : leaves ovate, glabrous, crenate. Stem 4 to 6 inches long.

beccabunga (brookline. W. N. A. P. b. J. 4.) racemes lateral : leaves ovate, flat : stem creeping. Stem 8 to 15 inches long. Flowers large.

anagallis (brook pimpernel. C. A. Can. P. b. J. 4.) racemes lateral : leaves lanceolate, serrate : stem erect.

scutellata (scull-cap speedwell. Y. A. W. N. b. J. 4.) racemes lateral, alternate ; pedicels pendant : leaves lance-linear.

arvensis (wall speedwell. W. C. P. w-b. M. ☺.) flowers solitary, nearly sessile : leaves ovate, serrate ; floral ones lanceolate, entire : stem erect, seeds flat. 4 to 6 inches high.

perigrina (purslane-speedwell. W. C. P. A. w. M. ☺.) flowers sessile, leaves glabrous, lance-linear, toothed and entire, obtuse, lower ones opposite : stem erect.

agrestis (field speedwell. C. P. b. M. ☺.) flowers solitary : leaves ovate, serrate, shorter than the petioles : stem procumbent : segments of the calyx ovate. The stem is terete, hairy. 5 to 10 inches long.

hederifolia (ivy speedwell. C. w-b. M. ☺.) flowers solitary : leaves cordate, flat, 5-lobed : segments of the calyx cordate, acute : seeds wrinkled.

Veronica, see Callistachia.

VERRUCARIA, 113.

schraderi (mite lichen. P.) crust tartarous, hard, whitish, smooth : receptacles minute, crowded, nearly globular, navelled, sunk, semitransparent within. Often on limestone, or other wrought stones in burying grounds, &c. scarcely visible.

stigmatella (P.) very thin, membranous, smooth, rather polished, greyish : tubercles minute, convex, warty, black.

nitida (P.) effuse, cartilaginous membrane, smooth, pale green : tubercles crowded, hemispheric, becoming bluish-black at the top, shining, warty, at length navelled.

VEXILLARIA, 80.

virginiana (butterfly-weed. P. b. Ju. ♃.) leaves ternate, ovate : calyx 5-parted, longer than

the bracts; its divisions subulate, incurved, diverging: legumes subensiform.

mariana (P. w-b. Ju. ☌.) leaves ternate: calyx much larger than the lance-linear bracts, oblong-tubular, 5-cleft: legume torulose on the convex sides: seeds glutinous.

VIBURNUM, 47.

opulus (guelder-rose, snow-ball. E. w. J. ♄.) leaves 3-lobed, sharp-toothed; petioles glandular, smooth: flowers in compact cymes, surrounded with radiating florets. Var. *roseum*, has the whole cyme made up of radiating florets.

tinus (laurestine. E. r-w. ♄.) leaves ovate, entire, with tufts of hair in the axils of the veins beneath: flowers in smooth cymes.

oxycoccus (high cranberry. A. W. Y. P. r-w. J. ♄.) leaves 3-lobed, acute at the base, axils of the veins hairy beneath, 3-nerved; lobes long-acuminate, with a few-scattering teeth; petioles glandular, grooved above: cymes rayed. 5 to 8 feet high. Fruit resembles the low cranberry, red and very acid. Grows plentifully in various parts of Columbia county, New-York. V. opuloides, Muhl.

lentago (sheep-berry. O. w. J. ♄.) glabrous: leaves broad-ovate, acuminate, hook-serrate: petioles margined, undulate: cymes sessile.—8 to 15 feet high. The branches when full grown often form a fastigiate top. Berries black, oval and sweetish, pleasant-tasted; somewhat mucilaginous.

lantanoides (hobble-bush, tangle-legs. O. w. M. ♄.) leaves broad, round-cordate, abruptly acuminate, unequally serrate; petioles and nerves furnished with powdery rusty down: cymes sessile: fruit ovate. Stem very flexi-

ble and crooked, about 5 or 7 feet long; sometimes much longer.

acerifolium (maple guelder-rose, dockmackie. O. w. J. ½.) leaves heart-ovate, or 3-lobed, acuminate, sharp-serrate, pubescent beneath: cymes long-peduncled. Stem very flexible, leaves broad and submembranous. The oldest Dutch settlers in Columbia county, New-York, inform us, that the Indians in that vicinity considered the external application of the leaves of the dockmackie as a sovereign remedy in every kind of inflammatory tumour; and that they have ever since adopted this practice with success.

dentatum (arrow-wood. A. N. C. w. M. ½.) smoothish: leaves roundish and ovate, acute, tooth-serrate, furrow-plaited, glabrous both sides: cyme peduncled: fruit subglobular. Berries blue. About 4 to 6 feet high.

pyrifolium (W. N. P. w. Ju. ½.) glabrous: leaves ovate, acutish, subserrate; petioles smooth: fruit oblong-ovate: cymes subpeduncled. Berries dark-coloured.

prunifolium (N. P. w. J. ½.) glabrous: branches spreading: leaves roundish, crenate-serrate; petioles smooth: cymes sessile: fruit round.

nudum (C. P. Can. w. M. ½.) very glabrous: leaves oval, subentire, margin revolute; petioles smooth: cymes peduncled and without bracts. Berries black.

pubescens (C. w. J. ½.) pubescent: leaves round-oval, acuminate, tooth-serrate, furrow-plaited, downy-villose beneath: cymes peduncled: fruit oblong. Small bush.

edule (Can. P. w. Ju. ½.) leaves 3-lobed, obtusish at the base, 3-nerved; lobes very short, tooth-serrate, with acuminate serratures; petioles glandular: cymes radiate. Small and upright.

Vicia, 79.

faba (garden bean, windsor bean. E. w. & black. J. ☺.) stem many-flowered, erect, strong: legumes ascending, tumid, coriaceous: leafets oval, acute, entire; stipules sagittate, toothed at the base. From Persia. This is very different from the beans most commonly cultivated in our gardens, under the names pole-bean and bush-bean. They belong to the genus Phaseolus.

pusilla (creeping vetch. Y. C. b-w. J.) peduncles solitary, 1-flowered, capillary: stipules semisagittate (that is arrow-form on one side) entire: leafets somewhat in sixes, lance-linear, obtusish: legumes small, oblong, glabrous.

mitchilla (mitchill's vetch. C. b. p. Ju.) peduncles many-flowered: leafets in about 7 pairs, retuse-mucronate: legume 2-seeded. Raf. See Pisum maritimum.

americana (C. P. p. M. 2.) peduncles somewhat many-flowered, shorter than the leaves: stipules semi-sagittate, toothed: leafets 8 to 12, lance-oval, obtuse, glabrous.

sativa (tare. C. W. A. P. b-p. Ju. ☺.) flowers in pairs, subsessile: stipules toothed, marked with dots: leafets oblong-ovate, retuse, mucronate: legumes erect, linear-terete, glabrous. Perhaps it may have been introduced; but it is now very common in all parts of Berkshire county, Mass.

cracca (Can. P. b. S. 2.) spikes many flowered, imbricate backwards, larger than the leaves: stipules semi-sagittate, linear-subulate, entire: leafets numerous, lance-oblong, pubescent.

caroliniana (P. w. M. 2.) peduncles many-flowered; flowers distant: stipules lance-ovate, entire: leafets 8 to 10, lance-oval, smoothish: stem glabrous. The banner of the flower is tipped with black.

Villarsia, 38.

lacunosa (spur-stem, floating heart. Plainfield, Mass. C. P. w. Ju. ♃.) leaves heart-reniform (or shortish heart-form) sub-peltate, lacunose beneath, floating: petioles bearing the flowers: corol glabrous. Menyanthes trachysperma. Grows in great abundance in Crooked lake in Plainfield. The peduncles proceed from the side of the petioles, under water a little below the leaf, and ascend raising the flowers through the sinus at the base of the leaf. Opposite to the origin of the petioles, proceed several spurs about an inch long. I visited the lake in September (1817) and the flowers were still in perfect bloom; as well as of the Hydropeltis purpurea and Utricularia cornuta, all of which flower in July. This lake is about three thousand feet higher than the tide waters at Albany.

Vinca, 40.

minor (periwinkle. P ? E ? b. Ap. ♄.) stem procumbent: leaves lance-oval, smooth at the edges: flowers petioled: teeth of the calyx lanceolate.

Viola, 42.

1. *Stemless; leaves all radical and the flowers on scapes.*

odorata (sweet violet. E. b. M. ♃.) scyons creeping: leaves cordate, crenate, smoothish: calyx obtuse: two lateral petals with a bearded or hairy line. Cultivated in gardens.

pedata (birdfoot violet. Y. H. C. P. A. b. M. ♃.) leaves many-parted-pedate; divisions lance-

linear, subentire : divisions of the calyx linear, acute.

palmata (hand violet. Y. C. P. A. b. M. 4.) pubescent : leaves cordate, hastate-lobed, or palmate ; divisions toothed : divisions of the calyx lanceolate, glabrous : 2 opposite petals bearded at the base. Var. *asarifolia*, leaves sub-reniform. Muhl. makes this a distinct species ; but Nuttall calls it a variety.

sagittata (arrow violet. H. P. C. b. Ap. 4.) pubescent : leaves oblong, acute, heart-sagittate, subserrate, gashed at the base : scapes longer than the leaves : divisions of the calyx linear, glabrous : three lower petals bearded at the base. Lower petal white towards the bottom with purple veins ; the rest longer, narrower, and whiter towards the base.

dentata (toothed violet. P. b. M. 4.) glabrous : leaves oblong, acute, truncate at the base, serrate, coarsely toothed or hastate below : scapes shorter than the leaves : divisions of the calyx linear : three lower petals bearded at the base.

lanceolata (spear violet. Y. C. P. H. w. Ap. 4.) glabrous : leaves lanceolate, subserrate : scape scarcely longer than the leaves : petals beardless ; 2 upper ones roundish and painted with purple veins. Small. Grows in wet places, as on the margin of Beaver pond, New-Haven.

blanda (smooth violet. H. W. A. C. Y. N. P. y-w. M. 4.) glabrous : leaves cordate, acutish, flattish, remotely serrate : scapes of the length of the leaves : petals beardless, the 2 lateral ones shorter, the lower one lanceolate and longer than the rest. Lower petal marked with blue stripes.

obliqua (twisted-wing violet. A. W. P. w-p. M. 4.) glabrous : leaves cordate, acute, crenate-serrate, flattish : flowers erect ; scapes of the length of the leaves : petals twisted a little into an oblique position, lateral ones narrower

and longer, bearded below the middle. Flowers with purple and yellow veins.

primulifolia (primrose-leaf violet. C. Y. A. P. H. N. w-b. Ap. ♃.) pubescent: leaves ovate, subcordate, crenate; petioles margined: calyx ciliate, long: petals all obovate, 2 lateral ones bearded.

cucullata (common blue violet. O. b. M. ♃.) glabrous: leaves cordate, glabrous, serrate, cowled (or rolled in at the base) scapes of the length of the petioles: petals bent obliquely, lateral ones bearded. Petals all whitish at the base.

sororia (bearded violet. W. P. b. M. ♃.) leaves cordate, crenate-serrate, obtuse, pubescent: scapes shorter than the leaves: petals oblong, the lower one bearded at the base, and veined.

papilionacea (butterfly violet. A. P. b. M. ♃.) leaves heart-triangular, acute, crenate, somewhat cowled, smoothish: scapes of the length of the leaves: petals obovate; 3 lower ones bearded below the middle, converging; 2 upper ones reflexed. Beard yellow. Nuttall considers this as a variety of the V. cucullata.

rotundifolia (ground violet. W. C. P. y. Ap. ♃.) smoothish: leaves round-cordate (when mature) obtusisb, crenate-serrate—the sinus at the base closed and serratures glandular: [scions flower-bearing, Pursh] petals linear, scarcely longer than the calyx. The leaves lie very close to the ground. V. clandestina, Pursh.

2. *Having a stem; more or less of the leaves cauline.*

tricolor (garden violet, heart's ease, pansy. E. p. y. b-p. M. ♃.) stem angular, diffuse, divided: leaves oblong, deeply crenate: stipules lyrate-pinnatifid.

canadensis (woods violet. O. b. & w. J. ♃.) smooth-

ish : leaves subcordate, acuminate, serrate : peduncles of the length of the leaves : stipules short, entire. Sometimes 6 or 8 inches high, in damp woods.

striata (striped violet. W. P. Catskill Mt. w-p. M. ♃.) glabrous : leaves cordate, acuminate, serrate, flattish : peduncles very long : stipules lanceolate, serrate-ciliate.

debilis (weak-stem violet. A. P. b. M. ♃.) glabrous : leaves heart-reniform, short-acuminate, crenate, cowled at the base : peduncles twice as long as the leaves : stipules serrate-ciliate. Flowers small.

rostrata (beaked violet. W. A. P. b. M. ♃.) glabrous : leaves cordate, acute, serrate : peduncles twice as long as the leaves : stipules lanceolate, serrate-ciliate : spur longer than the corol, extending into a beak.

pubescens (yellow woods-violet. O. y. M. ♃.) villose-pubescent : stem erect, leafy towards and at the top : leaves broad-cordate : stipules oblong, serrate at the apex. Varies much in its height. Usually 6 or 8 inches high; but I have seen it 20 inches high. Dr. Solon Smith showed me a specimen about 4 feet high, which he found in New-Hampshire.

hastata (halbert violet. P. y. M. ♃.) glabrous : stem simple, leafy above : leaves hastate, short petioled : stipules minute, denticulate.

concolor (green violet. P. w-g. J. ♃.) strait, erect : leaves broad-lanceolate, entire : stipules lance-linear, entire : peduncles axillary, in pairs, short. About 20 inches high, flowers small.

bicolor (two coloured violet. P. C. w. p. M. ☉.) subpubescent : stem angled, simple : lower leaves round spatulate; subdentate; upper ones lanceolate, entire; stipules comb-tooth pinnatifid : calyx acute, about half as long as the corol.

tenella (slender violet. New-Jersey. w.) lower leaves opposite, roundish, minute; upper ones sub-alternate, oblong, obtuse; all glabrous entire: peduncles longer than the leaves. Flowers small, solitary, with capillary peduncles.

arvensis (field violet. P. w. Ap. ☺.) stem angled, grooved; leaves lance-ovate, serrate; stipules gashed at the base: calyx hairy a little longer than the corol. Petals white, the lower one spotted with yellow. Smith sets this down under V. tricolor as one of its varieties.

Remark. Nuttall says, that all the North American species of violet (excepting V. concolor) after their blooming season is over, still continue to produce flowers without petals, through the rest of the summer.

Viscum, 99.

album (misseltoe, P. g-w. J. ♄.) leaves lanceolate, obtuse: stem dichotomous: flowers 5 together, in terminal sessile heads. On the branches of old trees. Leaves an inch long, thick and leathery. This, Smith says, is the golden bough of Virgil, and the sacred plant of the Druids.

Vitis, 41.

vinifera (wine grape. E. J. ♄.) leaves sinuate-lobed, naked or downy.

Remark. All the North American species of grape are polygamous or dioecious.

labrusca (plum grape. A. Y. C. H. P. w-g. J. ♄.) leaves broad-cordate, lobe angled, white-downy beneath: fertile racemes small: berries (blue, flesh-colour and green) large. Var. *labruscoides* (fox grape) has smaller fruit, approaching a tart taste.

aestivalis (summer grape. C. P. w-g. J. ♄.) leaves

broad-cordate, 3 to 5-lobed ; in the young state rust downy beneath ; fertile racemes oblong : berry small.

cordifolia (frost grape. O. w-g. J. ♄.) leaves cordate, acuminate, gash-toothed, glabrous both sides : racemes lax, many-flowered : berries small. Var. *vulpina*, leaves very variable ; but the uppermost mature leaves will agree with the description.

riparia (odoriferous grape. C. P. w-g. M. ♄.) leaves unequally gash-toothed, shortly 3-cleft, pubescent on the petioles, nerves and margins.

Vitis, see Ampelopsis.

VITTARIA, 102.

lineata (ribbon fern. P. 4.) frond linear very long, pendant : fruit-dots solitary within the margin.

W.

WOODSIA, 104.

hyperborea (flower-cup fern. Can. P. Ju. 4.) frond pinnate ; leafets 3-parted, or gash-pinnatifid, wedgeform, obtuse, toothed, rough-haired beneath : fruit-dots solitary, at length confluent. Small, in tufts.

ilvensis (N ? Can. P. Ju. 4.) frond bipinnatifid ; divisions oblong, obtuse, lower ones repand, upper ones entire, rough-haired beneath : fruit-dots submarginal, at length confluent : stipe villose above. Small.

WOODWARDIA, 103.

angustifolia (kidney-fern. C. Au. 4.) barren frond pinnatifid ; divisions lanceolate, repand

slenderly serrulate : fruit-bearing frond pinnate ; leafets entire, acute, linear. About a foot high. W. onocleoides.

virginica (C. Ju. ♃.) frond very glabrous, pinnate ; leafets sessile, lanceolate, pinnatifid ; divisions oblong, obtuse, cranulate, fertile ones elongated : stipe glabrous, terete. About a foot high.

X.

Xanthium, 93.

strumarium (clott-burr. N. Y. C. H. Au. ☉.) stem unarmed, branching : leaves cordate, lobed, serrate, scabrous, 3-nerved at the base : fruit oval, pubescent, with stiff hooked bristles. Has a little the habit of a burdock.

orientale (C. ☉.) stem unarmed : leaves wedge-ovate : fruit in strobiles. Here Pursh is experimenting upon our patience again. He has removed this genus to the class Syngenesia.

Xerophyllum, 52.

setifolium. This species is described under the Helonias asphodeloides. But Nuttall thinks it ought to be placed here.

Xylosteum, 40.

ciliatum (fly-honeysuckle, twin-berry. O. w-y. M. ♄.) berries distinct : leaves ovate and subcordate, margin ciliate, in the young state villose beneath : corol a little gibbous or calcarate at the base, tube ventricose above, divisions short, acute : style exsert.

solonis (swamp twin-berry. W. New Hampshire. y. M. ♄.) berries united in one, not distinct : two flowers situated on one germ : leaves ob-

long-ovate, villose. Berries dark purple.—Found first by Dr. Solon Smith (1815) at the foot of Whitehills. In 1817 found by Professor Dewey and Tutor Bascom, one mile east of Williams College, in a swamp. It is a small shrub, not exceeding 2 feet high.

Remark. Dr. Bigelow thinks this may be the *villosum* of Mx. But I cannot believe that Michaux would have omitted the most important character of the species, the united berry, if this were his plant. Besides, the place of growth given by Mx. is very different from this, as well as the colour of the fruit.

Xylostroma, 119.

giganteum (punk, oak-leather. O.) fibres parallel, the whole fungus filling the interstices between the cleavages of decaying wood. I have attentively compared our punk with a coloured drawing of the European species, and find it the same. This drawing may be seen in a splendid anonymous work of 3 vols. 8vo. designed as an illustration of the Linnean system, published about 3 years ago in London.

Xyris, 28.

anceps (yellow-eyed grass. Y. H. P. y. Au. ♃.) leaves linear, obtusish: scape spread and 2-edged near the top: scales of the head roundish. 6 to 10 inches high. Grows on the margin of the Beaver pond, New-Haven. X. caroliniana. Pursh.

brevifolia (C. P. y. Au. ♃.) leaves sword-subulate: scape teretish: head globose.

flexuosa (C. y.) leaves grassy, long: scape and leaves twisted, zigzag: head globose, scales roundish obtuse. Perhaps this description is not accurate.

Z.

Zanthorhiza, 48.

apiifolia (parsley yellowroot. P. p. Ap. ♄.) flowers panicled : leaves compound, subpinnate, a little sheathing at the base.

Zanthoxylum, 99.

fraxineum (prickly ash, tooth-ache bush. O. g-w. M. ♄.) prickly : leaves pinnate ; leafets lance-oval, subentire, sessile, equal at the base ; common petiole unarmed : umbels axillary. I have examined this plant in various parts of New-England and of New-York, without ever being able to find the staminate plant.

Zapania, 71.

nodiflora (fog-fruit. P. w. Ju. ♃.) leaves wedge-obovate, serrate above: spikes head-conic, solitary, long-peduncled : stem creeping.

lanceolata (P. w. Ju. ♃.) leaves lance-linear, sharply serrate : spikes head-conic, solitary, long-peduncled : stem creeping.

Zea, 91.

mays (indian corn. O. y-g. Ju. ☉.) leaves lance-linear, entire, keeled. Var. *precox* (dwarf corn) stem low : seeds mostly 8-rowed.

Zigadenus, 52.

glaberrimus (zigadene. P. w. J. ♃.) scape leafy ; bracts ovate, acuminate : petals acuminate ; leaves long, recurved, channelled.

Zinnia, 85.

multiflora (P. r. S. ☉.) leaves opposite, lance-ovate, subpetioled : flowers peduncled. Perhaps not a native of North America. Nuttall.

Zizania, 93.

clavulosa (water-oats, wild-rice. C. P. S. ☉.) panicle pyramid-form ; staminate flowers below, spreading ; pistillate flowers above, spiked : appendages to the flowers clavate, awned, long ; seed long, cylindric, becoming black.

fluitans (Lake Champlain. Pursh. Ju. ♃.) small ; culm slender, branching : leaves linear, flat : spikes solitary, axillary, setaceous, about 4-flowered : glumes awnless.

miliacea (P. Au. ♃.) panicle effuse : glumes short-awned : staminate and pistillate flowers intermixed ; seed ovate, smooth.

End of Part II.

ADDITIONS AND CORRECTIONS.

During the progress of this work, some new remarks have been made by my correspondents, some thoughts have occurred, and several errors have been detected, which I shall notice here.

But this addenda is more particularly necessary on another account. After 432 pages were struck off, I received Nuttall's genera of North American plants.* On comparing his generic characters and remarks, with those given in this Manual, I found he had greatly improved them in some of those natural assemblages, which are always the most difficult. These improvements will be found here.

Nuttall is a strong advocate for some of those innovations, which are not received by all botanists. But he has arranged his genera very near-

* Every teacher of botany, who adopts this Manual, is advised to procure Nuttall's most excellent work on North American genera. It will be found very useful in all cases of doubt. His extensive notes and remarks, which are the result of long experience and the most persevering industry, will be found very instructive ; though they are mostly confined to the southern and western states. While I am on the subject of botanical works, I will take the liberty to recommend two more cheap and very useful books. I mean the Catalogues of the New-Haven and New-York plants ; both of which will appear in a few weeks. Many of the materials of which the original part of this Manual is composed, were derived from a manuscript copy of the New-York catalogue, obligingly furnished by Dr. John Torrey. It will not be a naked list of plants ; but will contain many interesting remarks, popular characters and localities ; also full-length descriptions of the new species.

Those who wish to study the genera only of the Cryptogamous class, or both genera and species of ferns, will find a very good system in this Manual. But those who wish to study the species of fungi, lichens, mosses, liverworts and algae, extensively, must wait for the works of Muhlenberg and of Collins, which we hope will shortly appear. See preface, page 6.

ly upon Persoon's plan, excepting that he has rejected the class Dodecandria.*

The following remarks will be made under an alphabetical arrangement of the genera. The reader is requested to prefix a cross (†) to each genus or species in the body of the Manual which is noticed here. Then during the investigation of plants, it will appear by the occurrence of the cross, that something further may be found, by searching for the same genus, alphabetically, in this addenda.

AGROSTIS, *stolonifera* (fiorin grass. E. Ju. 4.) panicle compact: culm creeping, branching: flowers heaped together: glumes equal, lanceolate, pubescent. This grass was introduced from Europe by Gen. Stephen Van Rensselaer. Now it is perfectly naturalized and grows in great plenty near Albany.

AIRA, *oespitosa* should be *coespitosa*.

AMMI. Improved from Nuttall—fruit oblong, having a kind of bark, angular, ridges 5, obtuse, with the intervals between the ridges convex: involucre pinnatifid.

ANGELICA. Improved. General involucre none, or caducous.

ARABIS. Nuttall. Silique linear, mostly compressed, crowded, with a subsessile stigma: valves veined or nerved: seeds disposed in a single series: calyx erect.

ASTER, *linarifoluis* should be *linarifolius*.

ATHYRIUM, *aspleniodes* should be *asplenioides*.

BALSAMITA, *suavolens*, should be *suaveolens*.

BROMUS. Improved, Nuttall. Outer valves of

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* He has distributed our genera of the 11th class, as follows: Asarum to class 19, order 13 (taking our method of numbering classes and orders.) Hudsonia to 13. 1. Portulacca to 13. 1. Lythrum to 12. 1. Decumaria to 12. 1. Talinum to 13. 1. Cuphea to 12. 1. Agrimonia to 12. 2. Euphorbia to 20 16. Esula [by the same rule would be] 20. 16. and Reseda 13. 2—5.

the corol often bifid at the point—interior glume pectinately ciliate.

BUNIAS, *maritina* should be *edentula*.

CALLISTACHIA. Improved. Nuttall. Calyx 5-parted, divisions acuminate—capsule acuminate. See Nuttall's genus Leptandra, which is a synonym of this genus. M. Rafinesque had constructed this genus and published it, before Mr. Nuttall. And though this was no known to M. N. still it is the legitimate name on account of its being first published. See the New-York monthly Magazine.

CENTAUREA *acea* should be *jacea*.

CHIMAPHILA. Nuttall Calyx 5-toothed: petals 5: style very short, immersed in the germ; stigma surrounded or edged around with a ring, orbicular, with a 5-lobed disk: filaments with broad ciliate bases:* capsules 5-celled, margins unconnected.

CIMICIFUGA. Nuttall. Calyx 4 or 5-leaved: petals 4 to 8, deformed, thickish, sometimes wanting: capsules 1 to 5, many-seeded: seeds scaly.

CLEMATIS, *hexagona*. I am now convinced, that this is a very singular variety of the Atragene americana, in which the numerous petals, within the coloured calyx (or according to Pursh, the spatulate nectaries, alternating with the petals, and the dilated outer filaments) were nearly all cylindric and bearing perfect anthers. I have found some of this character, while others were as described by Pursh, on the same plant, this season. The reader will please to prefix the cross to the Atrogene americana also.

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* The reader is not to make Mr. Nuttall responsible for what may be deemed unscientific, or not sufficiently technical, in the language. For I depart from his language in all cases where it is necessary, for the purpose of making the language of this Manual uniform.

CRATAEGUS, *punctata*, erase P. and substitute O.

CYMBIDIUM, *hiemale*, erase the words "in pairs," and insert "solitary." Mr. Edwin James had found this plant in abundance near Middlebury College in Vermont, (where it is called putty root) and about Albany. But could never make it agree with any author's description; as all give it two radical leaves. Mr. Nuttall has corrected the error. See his Genera, vol. 2, p. 198. He has however separated from this genus, this species, together with the *corallorhizum* and *odontorhizum*, and made a new genus, which he calls Corallorhiza.

CYNOGLOSUM. Improved. Nuttall—throat of the corol closed by 5 converging, convex, processes: stigma emarginate.

ERIOCAULON, *gnaphalioides* (New-Jersey. Ju. 4.) scape subcompressed, with 10 grooves: leaves short, subulate-ensiform, glabrous: heads hemispheric-convex: the involucre consists of shining, scarious, oval, round-obtuse scales. Lately found in New-Jersey by Dr. Torrey. Heretofore found only in the Southern states.

EUONYMUS. Improved. Nuttall—the base of the calyx inside covered with a flat, peltate disk: petals 5, spreading, inserted on the outside margin of the glandular disk.

FERULA. Improved. Nuttall—petals oblong: seeds marked with 3 lines on the back: intervals and seam (or the place where the seeds unite, *commissure*) striate.

FESTUCA. Improved. Nuttall.—spikelets compressed, two-ranked, acute at both ends: outer valve of the corol entire—seed growing on the corol.

GALIUM. *sirictum* should be *strictum*.

GERANIUM, *diessctum*, should be *dissectum*.

GLYCIRRHIZA, *afficinalis*, should be *officinalis*.

HERACLEUM. Improved. Nuttall—fruit emarginate at the top, seed with 3 lines, intervals

spotted or dotted half way down; the joining of the seed (commissure) flat, 2-dotted: involucre none. Persoon says the involucre is caducous. We rarely find the involucre; but I believe it is because it falls of, while the umbel is unfolding.

IMPERATORIA. Improved. Nuttall—fruit emarginate at the base, 3 ridges on the back of each seed, obtuse, intervals flat, convex.

KYLLINGIA. The genus, at page 28, should have been placed under section D. at page 29.

LATHYRUS, *stapulaceus*, should be *stipulaceus*. Mr. E. James found this species this season (1818) on Catskill Mt.

LIMNETIS. Improved. Nuttall—flowers in unilateral, or one-sided, spikes—seeds oblong, compressed.

LYCIUM, *barbareum*. This species varies into the fifth class.

LYCHNIS. At page 60, strike out the word "smooth," and add at the end—capsule with a 5-toothed opening.

MALAXIS. Nuttall. Petals 5, narrower than the lip, spreading or deflected: lip flattened, undivided, sessile (mostly situated behind) the column (including the style, &c.) lengthened and somewhat straightened: rolls of pollen (pollinia) 4, parallel, affixed to the summit of the stigma.

MARRUBIUM. Motherwort should be horehound.

MARISCUS. The genus at page 29, should have been placed under section D. at the bottom of the same page.

MENYANTHES. Improved. Nuttall—corol funnel-form: border densely villose on the upper side.

MICROPETALUM. [Make one cross and interline this word on page 59, immediately over PENTAGYNIA; and again on page 319, over Mikania] calyx 5-leaved, spreading: petals 5, en-

tire, minute or none: capsule ovate, 4-valved. Nuttall says this is a trifling genus, and ought to be united to Stellaria. *lanceolatum* (Catskill Mt. P. Ju. ♃.) glabrous: leaves lanceolate, narrowed at both ends: flowers panicled: petals ovate, very short. *grainineum* (C. J. ♃.) very glabrous: leaves linear, erect: panicle terminal, lax: pedicels filiform: petals lanceolate, of the length of the calyx.

MYOSOTIS. Improved, Nuttall—throat of the corol closed with 5 small convex, converging scales.

MYRRHIS, see Uraspermum further on.

NYMPHAEA. Improved, Nuttall and Tracy—petals about equalling the calyx in length, inserted upon, or adhering to, the germ, beneath the stamens.

NUPHAR. At page 65, about one third of the edition was struck off with Naphar instead of Nuphar.

OENOTHERA, *chrsesantha*, page 332, should be *chrysantha*.

OROBANCHE. [Nuttall has divided this genus, so that our three species are in separate genera. I regret, that he had not rather left them as they were, and given us an improved definition of the old genus with his usual accuracy. I will now attempt it from his remarks.] Improved. Calyx 4 or 5-cleft, or 5-toothed: corol more or less ringent, or equally 5-cleft: capsule ovate, acute, or oblique-truncate, 1-celled, 2-valved, many-seeded. Sometimes there is a gland beneath the base of the germ; when this is wanting, the capsule is truncate and opens only on one side.

ORONTIUM, *aquaticum*. Erase floating arum and insert, golden-club.

PANASSIA, alter to Parnassia. Page 349.

PRIMULA, *auricula*, for auricula tulip, write auricula primrose.

PRUNUS *serotina*. Erase choke-berry and insert choke-cherry.

PYROLA. Nuttall. Calyx 5-cleft or 5-parted: petals 5, caducous: style exsert: capsule 5-celled, opening at the angles near the base; margins of the valves connected by entangled down. The middle partitions of the capsule uniting with the columella: seeds very numerous, minute, and partaking a little of the form of a samara.

SALVIA, *sclava*, should be sclara.

SCIRPUS. [Erroneously printed at page 29.] Improved—style caducous. This is its best character by which it is distinguished from Rhynchospora. For in the latter some part of the style remains permanent upon the seed.

SOLIDAGO, *rauta*, should be *arguta*. This error extends through but part of the edition.

TRADESCANTIA. At page 48, for heads-read hairs.

TURRITIS. Nuttall. Silique elongated, 2-edged: valves nerved or keeled: seeds disposed in two rows, or a double series. By this last character it is best distinguished from Arobis, whose seeds are all arranged in one series.

URASPERMUM. [Prefix the cross, referring to this, to Myrrhis, page 326 and 46.] Nuttall has here added another name, to the many heretofore given, intended, I presume, to include the sweet cicily. Fruit sublinear, solid, acute-angled, tailed, and not striate; angles a little furrowed, hispid; the joining sides of the seeds furrowed; style subulate, permanent, terminating the fruit. I am still altogether at a loss respecting the two plants, which we call the sweet cicily and poison cicily.

VERONICA. Improved. Nuttall. Capsules obcordate. This is a decisive character to distinguish this genus from the Callistachia.

Note. Several specific names, which should

begin with c, begin with e; but they may be readily corrected without being referred to. At the foot of page 120 add, E. stands for exotics.

ADVERTISEMENT.

The plants described in this Manual are as follows. Phenogamous genera 690.—Indigenous species 1950. Exotic species 342. Introduced from the Southern states 22. Cryptogamous genera 100. Species 476. Total species 2790. None have been omitted (unless by mistake) which are known to inhabit any part of the United States, north and north-east of Virginia; excepting rare exotics.

It is the intention of Messrs. Websters and Skinners, always to keep on hand a supply of the Manual, sufficient to answer all orders. The science of Botany is continually receiving important contributions from the original productions of able Naturalists. Such works are becoming very interesting and do honor to the American character. A pocket book of reference, embracing the essence of these learned labors, is, perhaps, indispensible. No pains will be spared to add to the present contents of this Manual, the results of future investigation, as fast as they appear.

Heretofore it seemed to be the opinion of most Botanists, that enlarged descriptions of the plants of such an extensive district, could not be included in a book of this portable size. Now the book is completed, it will be seen, that the descriptions are, in most cases nearly as extensive as those of Willdenow; and far more extensive than those of Persoon.

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